

# *RetroSound*<sup>®</sup>

## **R-TW82 and R-TW84 8" Subwoofer Owner's Manual**



The information enclosed in this manual is to be used as a guide to assist in the proper use of this product. This manual does not cover every possibility or use scenario.

Retro Manufacturing, LLC, or its subsidiaries, assume no responsibility for any issues regarding the product's use or misuse. Please read this manual thoroughly before use.

***RETROSOUND.COM***

## Welcome

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Thank you for your decision to purchase a RetroSound 8 inch subwoofer. This ultra-thin subwoofer features the latest materials and is designed to provide years of accurate musical reproduction in your vintage vehicle. For optimum performance, please make sure that you install this woofer in enclosure sizes outlined in this manual

## Features:

- Ultra-thin 1.96" mounting depth
- Neodymium magnet
- Rigid, cast-aluminum basket
- Injected poly-mica cone
- Santoprene® surround
- 2 and 4 ohm versions
- Optimized for .12 cu. ft. - 1 cu. ft. sealed enclosures
- 1.75" voice coil with Kapton® former
- 250 watt RMS / 500 watt Max power handling

## Notes

## Install Overview

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The installation of your RetroSound® subwoofer requires experience with a wide variety of mechanical procedures, including enclosure construction. Please email ([support@retrosound.com](mailto:support@retrosound.com)) or call us directly: 702-483-2222 if you have any questions. Should you need professional help to complete your install, please feel free to contact your local RetroSound® dealer.

### Important:

The Retrosound 8" Subwoofer is optimized for a sealed enclosure size of .12 cu ft. - 1 cu. ft. This type of box is easy to build and offers small size and great power handling. A well-designed sealed enclosure will exhibit smooth and accurate frequency response with excellent low bass extension. If a sealed enclosure is too large to fit into a specific area of a vehicle, it is possible to decrease the recommended box volume by using 1.5 lbs/sq feet of low density, high heat specific box stuffing material. We recommend fiberglass, dacron, poly-fill or long fiber wool for stuffing the enclosure. **NOTE: Decreasing the box enclosure should not exceed 20% of the recommended size.** When using any type of box stuffing material be sure that the subwoofer's vented pole piece is clear from any obstructions, since covering the pole piece will result in loss of bass and can possibly cause damage to your subwoofer. The most important aspect of a sealed enclosure is to make sure that it is airtight and solid. If your enclosure has any air leaks, or if the panels vibrate or flex, you will experience a loss of bass output. Using glue and some type of sealant (caulk) on all seams will ensure a solidly constructed box without any air leaks.

NOTE: If you are intending to use multiple subwoofers in your system, RetroSound® recommends having separate chambers for each subwoofer, if the subwoofers will be operated by two different amplified signals. This will prevent any possible phase cancellation.

## Installation and Performance Suggestions

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### INSTALLATION TIPS

Your RetroSound® subwoofer has been carefully engineered and is designed to handle high-powered 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. All RetroSound® subwoofers require an initial break-in period before they will reach optimum performance. Like any new precision machinery, allow a minimum of several days to one week with normal daily usage to ensure that the suspension has properly been broken-in.
2. Be sure you supply the speakers with enough un-clipped 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!*
3. Where possible, run your speakers in mono instead of stereo. Most bass is reproduced in mono so there is less chance of any cancellation if played in mono.
4. Where possible, wire your speakers in parallel instead of series. Bass is reproduced either way but again there is less chance of cancellation in parallel. *NOTE: Be sure the amplifier you are using is stable to the resulting impedance of the speaker load!*
5. Where possible, a dedicated amplifier just for your subwoofers should be used with an electronic 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 system by using two amplifiers.
6. Do not block the front of your speakers. You want as much direct air coupling as possible.

## Installation and Performance Suggestions

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### BOX CONSTRUCTION:

The material used for enclosure walls should be solid, dense and free of voids or warps. Your enclosure should be made  $\frac{3}{4}$ " or 19mm material, Finland or Baltic birch type plywood is recommended where the enclosure will be transported frequently. High-density fiberboard - MDF (not chipboard) can be used on permanently installed systems. Minimum of 1" (25mm) or double  $\frac{3}{4}$ " (1-1/2") baffle is recommended on high-powered SPL applications. Corners must be strong and air tight and should not have any air leaks or openings. Joints should be properly filled with glue that will not crack under high stress or impact. If the integrity of the glue seal can't be determined, hot glue or RTV caulking should be used to seal all seams. Fiber reinforced resin may also be used to form any difficult shapes. However avoid making large panels with resin to eliminate any chances of box flexing, cracking or ratting under high pressure. Bracing made of 2 x 2" or 2 x 4" should be liberally applied either inside or outside the cabinet, depending on whether the cabinet is to be permanently installed or portable. This principle applies to any walls of the enclosure spanning more than 18" long. Any braces should also be liberally glued or screwed down on edge. Drilled and countersunk holes through the braces can be used for #10-2 Flathead wood screws to avoid the use of more expensive lag bolts. The majority of strength from an enclosure comes from the glue. When using screws be sure to pre-drill holes to avoid splitting the wood.

***WARNING! The use of silicone rubber to seal in a speaker will void the Warranty! If any sealing is needed in addition to the speaker's gasket, use caulking cord or vinyl weather strip.***

### SUBWOOFER CROSSOVER SETTING:

Your RetroSound® subwoofer will perform best if it is used in conjunction with a subwoofer crossover of some kind. Using a crossover will remove unwanted high frequencies and allow it to concentrate only on bass. The two most common types of crossovers are "passive" and "active" (electronic crossovers are active). Many amplifiers have a built in Low Pass (LPF) electronic crossover circuit. For optimum subwoofer performance we recommend an initial electronic crossover setting between 80-100Hz. You may then tune the bass to your liking.

## Tools and Tips

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

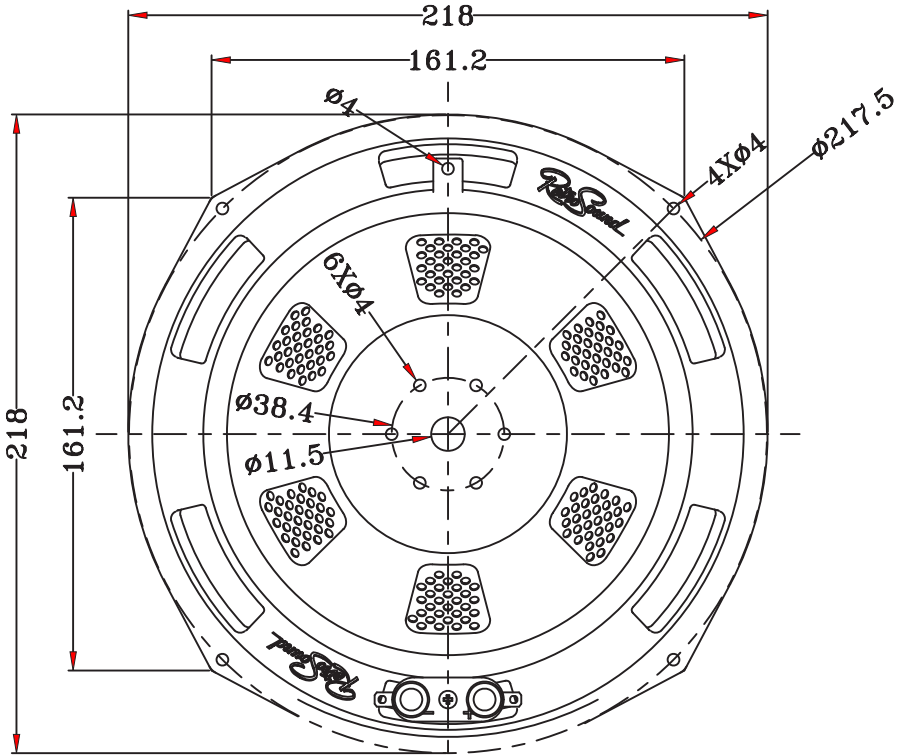
- An electric drill with bits
- Saber, circular saw and jig saw
- Phillips-head and standard screwdrivers
- Wire strippers
- Crimping tool and needle-nose pliers
- Silicone sealant (for enclosures), closed cell weather-stripping (for the speakers)

### INSTALLATION PRECAUTIONS

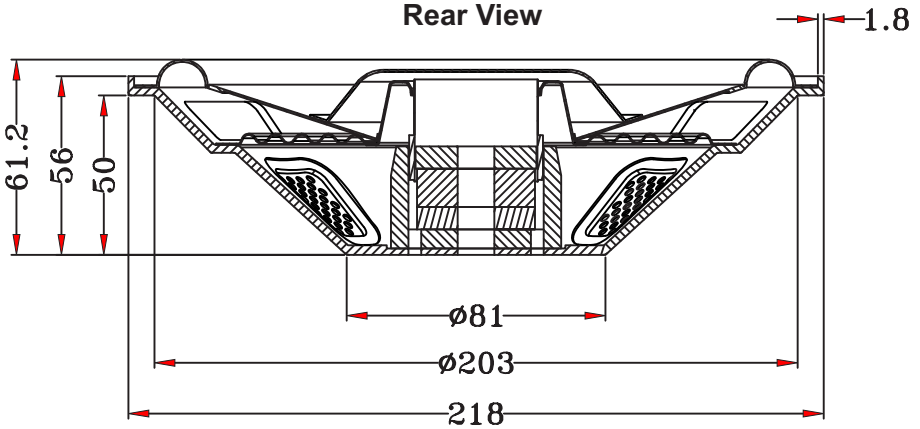
**NOTE:** Proceed only if you are a qualified installer. Otherwise; let a professional do it.

- 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, and always rest it with the cone facing up. Never use force when installing a speaker.
- 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 drilling holes or installing screws for proper speaker ventilation.
- Also make sure there's enough front clearance for speaker cone excursion. Failure to do this could cause the cone to vibrate against any obstructing object.
- Use a utility knife to trim away fabric from the speaker mounting hole location before drilling. It is hard to get a good seal if you have both the carpet & subwoofer gasket between the speaker and the enclosure.
- When running speaker wires through sheet metal, be sure to use grommets to properly insulate the wires from metal edges.

Woofers Dimensions (in millimeters)



Rear View



Side View

## Woofer and Enclosure Specs

Peak power handling	500 Watt
RMS power handling	250Watt
Nominal impedance	2 ohm / 4 ohm
DC resistance(Re)	1.75 ohm /3.5 ohm
Resonance frequency(fs)	33 Hz
Frequency range	32~5000 Hz
Total Q factor(Qts)	0.834
Mechanical Q factor(Qms)	5.619
Electrical Q factor(Qes)	0.979
Effective cone area(Sd)	27.465m
Equivalent air volume(Vas)	18.585
Sensitivity	88dB
BL Factor	9.871
Effective Moving Mass(MMS)	128.204g
Mechanical Compliance(CMS)	173.503 uM/N

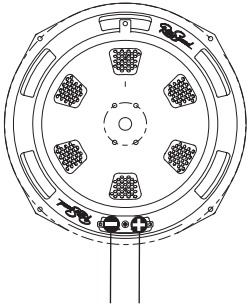
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NOTE: If you are intending to use multiple subwoofers in your system, RetroSound® recommends having separate chambers for each subwoofer, if the subwoofers will be operated by two different amplified signals. This will prevent any possible phase cancellation.



# Woofer Wiring Diagrams

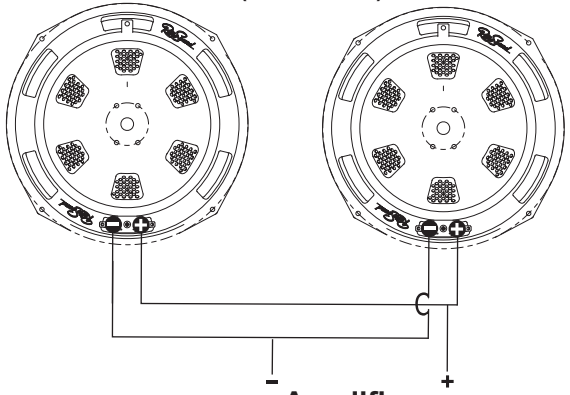
## SINGLE WOOFER



**Amplifier**

*2 Ohm Subwoofer: 2 Ohms  
4 Ohm Subwoofer: 4 Ohms*

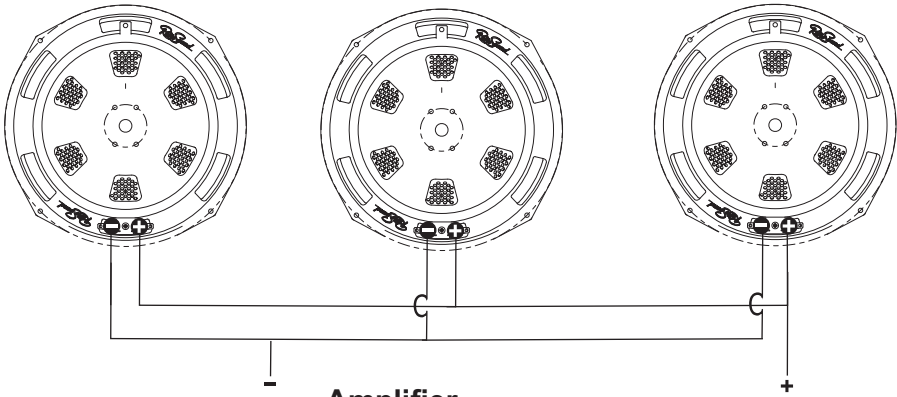
## TWO WOOFERS (PARALLEL)



**Amplifier**

*2 Ohm Subwoofer: 1 Ohm  
4 Ohm Subwoofer: 2 Ohms*

## THREE WOOFERS (PARALLEL)



**Amplifier**

*2 Ohm Subwoofer: .67 Ohm  
4 Ohm Subwoofer: 1.33 Ohms*

## Warranty

If your product does not work properly because of defects in materials and workmanship RetroSound®, a division of Retro Manufacturing, LLC (collectively referred to as "the warrantor") will, for the length of the period indicated in the chart below, which starts with the date of original purchase ("warranty period"), at its option either (a) repair your product with new or refurbished parts, or (b) replace it with a new or refurbished product. The decision to repair or replace will be made by the warrantor.

***RetroSound® speakers are covered for: (1) Year Parts and (1) Year Labor.***

During the "Labor" warranty period, there will be no charge for labor. During the "Parts" warranty period, there will be no charge for parts. You must carry in or mail in your product prepaid during the warranty period. This warranty only applies to products purchased and serviced in the United States, Alaska, Hawaii or Puerto Rico. This warranty is extended only to the original purchaser of a new product which was not sold "as is". A purchase receipt or other proof of the original purchase date is required for warranty service.

To handle a warranty issue, contact us at support@retrosound.com or 702-483-2222 and get a Return Authorization number. All returns and warranty issues must receive a Return Authorization (RA) number. Any product received without a RA number will be refused.

Retro Manufacturing, LLC Phone: 702-483-2222 Fax: 702-483-2229

### LIMITED WARRANTY-LIMITS AND EXCLUSIONS

This warranty ONLY COVERS failures due to defects in materials and workmanship, and DOES NOT COVER normal wear and tear or cosmetic damage. The warranty ALSO DOES NOT COVER damages which occurred during shipment, failures which are caused by products not supplied by the warrantor, failures which result from accident, misuse, abuse, neglect, bug infestation, mishandling, misapplication, alteration, faulty installation, set-up adjustment, maladjustment of consumer control, improper maintenance, improper antenna, inadequate signal reception or pickup, power line surge, improper voltage supply, lightning, modification, commercial use (such as use in hotels, offices, restaurants, or other business uses) or rental use of the product, or service by anyone other than the technician from the factory service center or other authorized service centers, or damage that is attributable to acts of God.

THERE ARE NO EXPRESS WARRANTIES EXCEPT AS LISTED UNDER "LIMITED WARRANTY". THE WARRANTOR IS NOT LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. (As examples, this excludes damages for lost time, cost of having someone remove or re-install an installed unit if applicable, travel to and from the sevicer, and loss of media, data or other memory contents. The items listed are not exclusive, but are for illustration only.) ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTY OF MERCHANTABILITY, ARE LIMITED TO THE PERIOD OF THE LIMITED WARRANTY.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the exclusions may not apply to you. This warranty gives you specific legal bottoms and you may also have other bottoms which vary from state to state. If a problem with this product develops during or after the warranty period, you may contact your dealer or service center.

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