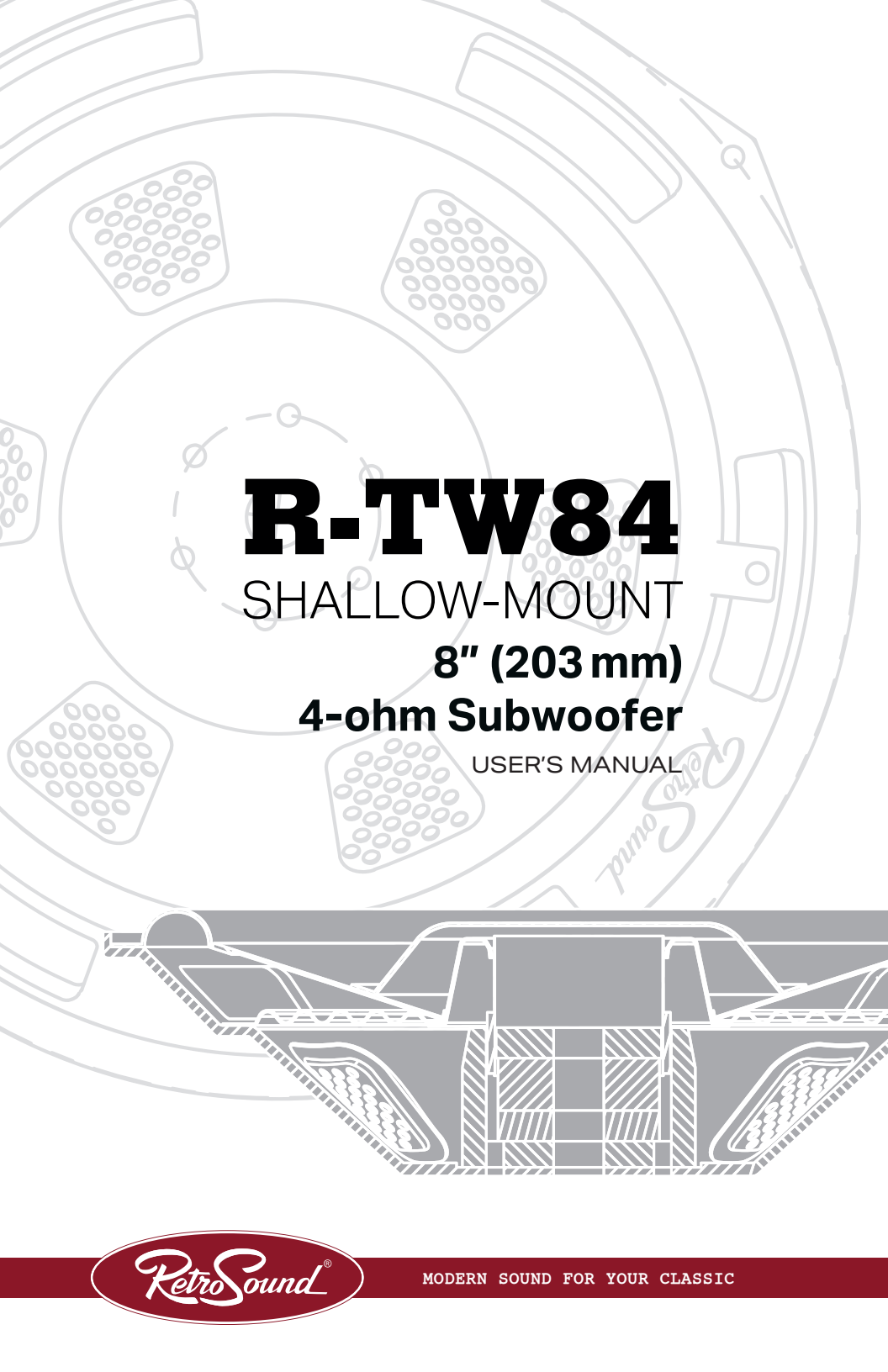




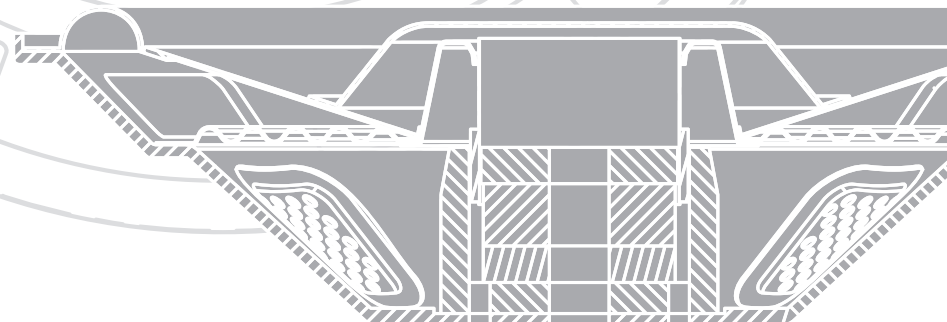
R-TW84

SHALLOW-MOUNT

8" (203 mm)

4-ohm Subwoofer

USER'S MANUAL



RetroSound[®]

MODERN SOUND FOR YOUR CLASSIC

GENERAL FEATURES

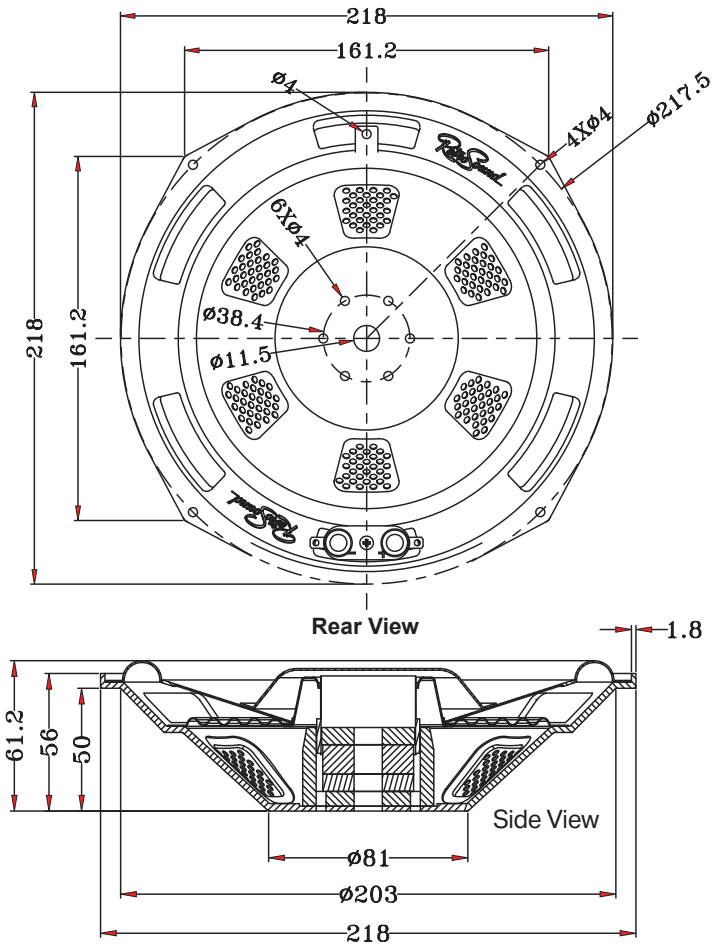
- 4 ohm 8-inch (203mm) thin subwoofer
- Neodymium magnet with rigid, cast-aluminum basket with perimeter venting
- Unique pole vented design for maximum piston cooling
- Polypropylene cone
- Oversized dust cap for added mass and lower driver resonance
- Santoprene® surround
- Optimized for .12 cu. ft. (3.39 L) - 1 cu. ft. (28.31 L) sealed enclosures
- Frequency response; 32Hz to 5,000Hz
- 1.75" voice coil with Kapton® former
- 250 watt RMS / 500 watt max power handling

SPECIFICATIONS

Power Usage	
Peak Power Handling.....	500 Watt
RMS Power Handling.....	250 Watt
Nominal Impedance.....	4 Ohm
DC Resistance (Re).....	3.5 Ohm
Resonance Frequency (Fs).....	33 Hz
Frequency Range.....	32~5000Hz
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.....	9.871m
Effective Moving Mass (MMS).....	128.204g
Mechanical Compliance (CMS).....	173.503 uM/N

NOTE: All specifications are subject to change without notice.

SUBWOOFER DIMENSIONS



Dimensions in millimeters

The information enclosed in this user's manual is to be used as a guide to assist you with installation and operation of your powered subwoofer. This guide does not cover every installation possibility, vehicle, or aspect of the installation process.

Retro Manufacturing, LLC, RetroSound®, or its subsidiaries assume no responsibility for any installation. Due to continuing improvements, features and specifications are subject to change without notice. This manual may be updated from time to time without notice.

Visit our website for the latest updates: www.retromanufacturing.com.

INSTALLATION AND PERFORMANCE

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 speaker 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. It is best to use an amplifier with a dedicated subwoofer output or one that features an electronic crossover with an adjustable low pass (LPF) setting.
6. Do not block the front of your speakers. Make sure there is enough room for the cones excursion and the surround does not rub or come in contact with any obstructions.

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.

- 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.
- 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.

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.

SPEAKER HOUSING

The RetroSound® 8" subwoofer is optimized for a sealed enclosure size of .12 cu. ft. - (3.39 L) 1 cu. ft. (28.31 L) 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.

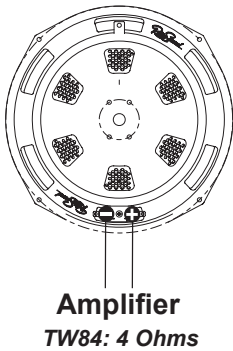
SPEAKER BOX CONSTRUCTION

The material used for enclosure walls should be solid, dense and free of voids or warps. Your enclosure should be made 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 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.

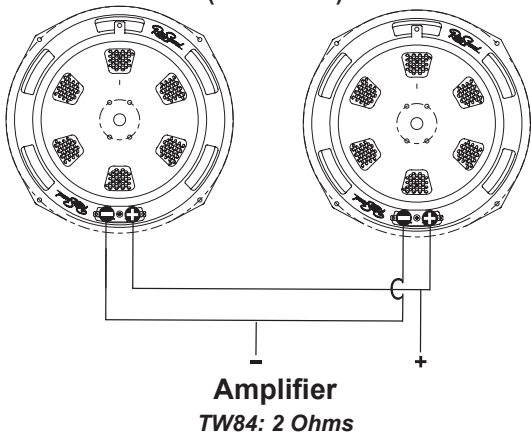
WARNING: The use of silicone rubber to seal in a speaker will void the warranty! If any sealing is needed in addition to the speaker's gasket, use caulking cord or vinyl weather strip.

SUBWOOFER WIRING DIAGRAMS

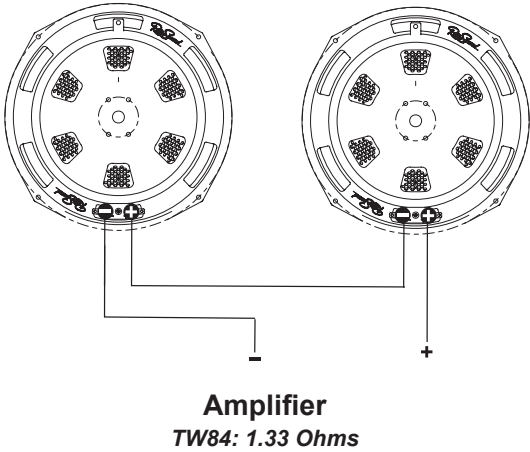
SINGLE WOOFER



TWO WOOFERS
(PARALLEL)



TWO WOOFERS
(SERIES)



TROUBLESHOOTING

Problem	Possible Cause	Action to Solve Problem
Powered subwoofer will not turn on	12 volt battery + wire not connected or incorrect voltage	Check all connections for proper voltage with a volt meter. Voltage range: 12-15 volts
	Remote turn-on wire not connected or incorrect voltage	Check remote turn-on wire connection
	Ground wire not connected	Check ground connection for possible shorts
	Fuse on battery + has failed	Replace failed fuse
No sound heard from unit but unit's power light illuminates	Volume or gain turned all the way down	Increase radio volume or powered subwoofer gain
	Amplifier is in protection mode	Check speaker leads for possible shorts
	Input signal not connected	Check inputs for proper connections
Fuses keep failing	Possible short in wiring	Check all wiring connections for possible shorts
	Battery connected backwards	Make sure battery is properly connected
	Incorrect fuse rating	Use a fuse with the correct 10 amp rating
Engine noise heard through speakers	Bad ground connection	Make sure the powered subwoofer is ground to clean, bare metal
	Ground loop or RF interference	Reroute RCA cables away from other wiring
	Gain is set too high	Adjust the gain control down until the noise goes away
Distorted audio output	Incorrect input signal type or input signal volume is too high	Check connections and reduce input volume
Weak bass response	Subwoofer is out of phase	Toggle phase control
		Check polarity of speaker wires on high-level input
Low audio output	Incorrect input signal type or input signal volume is too low	Check connections and increase input volume

LIMITED WARRANTY

Your unit comes with a manufacturer’s warranty covering any defects in materials and workmanship. Retro Manufacturing, LLC (collectively referred to as “the warranter”), at its option, will either (a) repair your unit with new or refurbished parts or (b) replace it with a new or refurbished unit. The warranty period starts from the original purchase date and is valid for the length of time indicated in the chart below. The decision to repair or replace will be made by the warranter.

ITEM	WARRANTY
Speakers	One (1) Year

During the “Parts” warranty period, there will be no charge for parts. You must mail in your unit during the warranty period at your expense. This warranty only applies to products purchased directly from Retro Manufacturing or an authorized dealer. This warranty is extended only to the original purchaser of a new product that 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 go to www.retromanufacturing.com/returns-center and fill out the Returns Form for a Return Authorization (RA) number. A RA number must accompany all returns and warranty issues. Any product received without a RA number will be refused.

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 that occurred during shipment, failures which are caused by products not supplied by the warranter, failures that 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 Retro Manufacturing, LLC, or damage that is attributable to acts of God.

THERE ARE NO EXPRESS WARRANTIES EXCEPT AS LISTED UNDER LIMITED WARRANTY. THE WARRANTER IS NOT LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS UNIT OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. (As examples, this excludes damages for lost time, the cost of having someone remove or re-install an installed unit if applicable, travel to and from the servicer, 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 rights, and you may also have other rights which vary from state to state. If a problem with this unit develops during or after the warranty period, you may contact your dealer or Retro Manufacturing, LLC.

[illegible]



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