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GRAND TOURING® SERIES

**GTO804
GTO1002D
GTO1004D
GTO1202D
GTO1204D
GTO1502D
GTO1504D**

car audio subwoofer
owner's manual

THANK YOU

for purchasing a JBL® Grand Touring® Series subwoofer. Subwoofer installation requires woodworking skills and some experience in disassembling and reassembling automotive interiors. If you lack the tools or necessary skills, have your subwoofer installed by an authorized JBL dealer.



**THE OFFICIAL BRAND
OF LIVE MUSIC.**

WARNING: Playing loud music in an automobile can permanently damage your hearing as well as hinder your ability to hear traffic. We recommend listening at low levels while driving. JBL accepts no liability for hearing loss, bodily injury or property damage resulting from use or misuse of this product.

CHOOSING AN ENCLOSURE

Grand Touring Series subwoofers are optimized to perform best in small, sealed, vented and prefabricated bandpass enclosures. While infinite-baffle mounting of GTO subs is possible, power handling will be greatly compromised because there's no enclosed volume of air to prevent the speaker's cone from moving past its limit. For this reason, we do not recommend infinite-baffle mounting for GTO subwoofers.

You should choose the enclosure you will use based on the type of music you listen to, how much amplifier power you will use for the subwoofer and how much space inside the vehicle you can devote to a subwoofer enclosure.

Because a sealed enclosure provides the most control over the woofer's movement, a woofer mounted in a sealed enclosure will handle more power than a woofer mounted in another enclosure type. Sealed enclosures provide more accurate sonic reproduction than other enclosure types when mounted inside a vehicle, so they are well-suited to all types of music. Sealed-enclosure construction is straightforward and there are many

prefabricated sealed enclosures available. An optimum sealed enclosure is always smaller than other types of enclosures optimized for a particular speaker, so they require the smallest amount of space inside the vehicle.

Vented enclosures provide better efficiency in the 40Hz–50Hz range but this efficiency comes at the expense of sound in the lowest octave (below 40Hz) and at the expense of some control and power handling at the lowest frequencies. If you are using a small amplifier, a vented box will provide more perceived bass output from less power. Vented enclosures are also well-suited to a variety of music types. Because vented enclosures require the volume of the enclosure and the size of the port to have a specific relationship with the characteristics of the woofer, the enclosure must be built *exactly* to the specifications provided. While there are some prefabricated vented boxes available, matching a prefabricated box to a particular woofer is difficult. If you wish to use a vented enclosure, we strongly recommend having your authorized JBL dealer build it or verify that your

design is correct if you wish to build it yourself. An optimum vented enclosure is always larger than the optimum sealed box for the same woofer and will require more space inside the vehicle.

Bandpass enclosures often provide the most output available from any amplifier and subwoofer combination at the expense of sonic accuracy. If sheer SPL (sound-pressure level) is what you desire most, choose a bandpass enclosure. Bandpass-enclosure design is very tricky and the aid of a computer and enclosure design software is necessary. If you are an experienced installer or have some woodworking experience, you may wish to build the bandpass enclosure described in the enclosure design sheet included with this woofer. Fortunately, there are many prefabricated bandpass boxes available and they are all optimized to extract the most output possible from any woofer. Bandpass enclosures can be quite large and may require a lot of space inside your vehicle.

CONNECTING YOUR SUBWOOFER TO YOUR AMPLIFIER

JBL Grand Touring Series subwoofers are available in two different configurations: as dual 4-ohm voice coils or as dual 2-ohm voice coils. Depending on the amplifiers you are using, you may use GTO subwoofers in singles or multiples to maximize the power available from your amplifiers. To achieve the maximum amplifier output possible, you should design a speaker system that provides the lowest impedance that your amplifier will drive safely. When designing a subwoofer system, consider the following rules:

1. Do not mix different subwoofers or enclosure types in the same system. Subwoofers being used in the same enclosure or powered from the same amplifier should be identical models. Mismatched woofers and enclosures can result in poor performance from your subwoofer system.

2. You may connect the coils of a dual-voice coil woofer in series, but we recommend that you avoid connecting separate woofers in series.
3. You must use both coils of a dual-voice coil woofer connected either in series or in parallel.
4. Most amplifiers deliver exactly the same amount of power bridged into a 4-ohm load as they do running a 2-ohm stereo load.

To design a subwoofer system that maximizes available amplifier power, keep the following rules in mind:

1. The total system impedance of woofers in parallel can be calculated using the formula:

$$\text{Impedance} = \frac{1}{\frac{1}{w_1} + \frac{1}{w_2} + \frac{1}{w_3} \dots}$$

where w is the nominal impedance of the woofer.

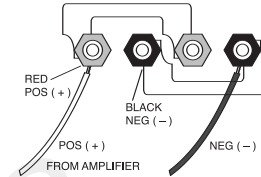
2. The total system impedance of voice coils (or woofers) in series can be calculated using the formula:

$$\text{Impedance} = w_1 + w_2 + w_3 \dots$$

The diagrams at right show parallel and series speaker connections.

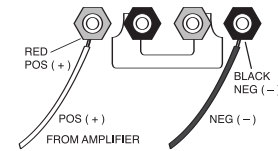
NOTE: There are two jumpers supplied with the woofers to make connections easier.

Figure 1. Parallel connection



NOTE: The GTO1004D, GTO1204D and GTO1504D come with both jumpers installed for a parallel configuration.

Figure 2. Series connection



NOTE: The GTO1002D, GTO1202D and GTO1502D come with one jumper installed for a series configuration.

SPECIFICATIONS

	GT0804	GT01002D	GT01004D	GT01202D	GT01204D	GT01502D	GT01504D
	8" Single 4-Ohm Subwoofer	10" Dual 2-Ohm Subwoofer	10" Dual 4-Ohm Subwoofer	12" Dual 2-Ohm Subwoofer	12" Dual 4-Ohm Subwoofer	15" Dual 2-Ohm Subwoofer	15" Dual 4-Ohm Subwoofer
Power Handling, RMS	200W	250W	250W	300W	300W	300W	300W
Power Handling, Peak	800W	1000W	1000W	1200W	1200W	1200W	1200W
Sensitivity (2.83V/1m)	91dB	91dB	91dB	93dB	93dB	93dB	93dB
Frequency Response	30Hz – 400Hz	25Hz – 400Hz	25Hz – 400Hz	23Hz – 400Hz	23Hz – 400Hz	23Hz – 400Hz	23Hz – 400Hz
Impedance	4 Ohms	4 Ohms/1 Ohm	8 Ohms/2 Ohms	4 Ohms/1 Ohm	8 Ohms/2 Ohms	4 Ohms/1 Ohm	8 Ohms/2 Ohms
Mounting Depth	4-3/8" (112mm)	4-9/16" (116mm)	4-9/16" (116mm)	5-1/16" (129mm)	5-1/16" (129mm)	5-5/8" (143mm)	5-5/8" (143mm)
Cutout Diameter	7-3/16" (183mm)	9-3/16" (234mm)	9-3/16" (234mm)	11-3/16" (285mm)	11-3/16" (285mm)	13-7/16" (342mm)	13-7/16" (342mm)
Overall Diameter	8-1/4" (210mm)	10-3/8" (264mm)	10-3/8" (264mm)	12-7/16" (316mm)	12-7/16" (316mm)	15-1/16" (383mm)	15-1/16" (383mm)

A valid serial number is required for warranty coverage.

Features, specifications and appearance are subject to change without notice.

These products are designed for mobile applications and are not intended for connection to the mains.

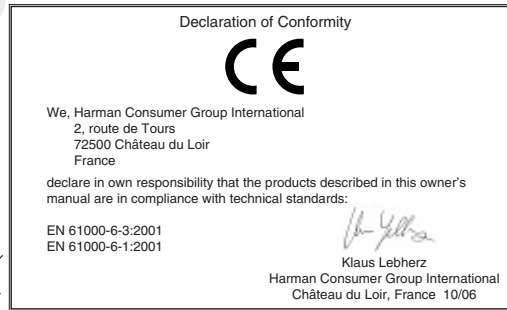
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