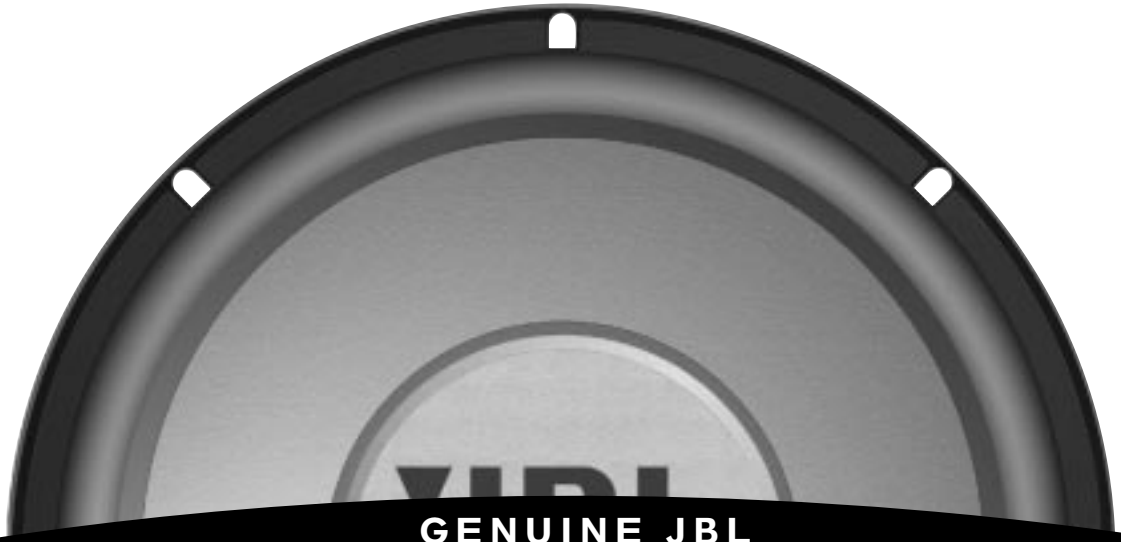
JBL

DECADE™

DS100, DS120



GENUINE JBL

Thank you for choosing a JBL Decade™ Series subwoofer. Decade Series subwoofers are designed to suit a broad range of mobile-audio applications and can be used in a wide variety of enclosure types to produce extended, powerful bass in a limited amount of vehicle space. To ensure maximum subwoofer performance, we strongly recommend that installation be left to a qualified professional. Although these instructions explain how to install a JBL Decade Series subwoofer in a general sense, they do not show box construction details and exact installation methods for your particular vehicle. If you do not feel you have experience, do not attempt the installation yourself, but instead ask your authorized JBL dealer about professional installation options.

Remember to keep your sales receipt with this manual in a safe place so both are available for future reference.

A Few Words About Enclosures

Your Decade Series subwoofer requires an enclosure to realize its full low-frequency response. The speaker's design is flexible enough to produce exceptional results no matter whether you specify a small sealed, vented or bandpass enclosure. In vented and bandpass enclosures, box size and port tuning frequency will also help dictate the low-frequency performance and output capability of your system.

Your Decade Series subwoofer will also work in infinite baffle applications where there is no space or budget to build a box. Be aware that infinite baffle or "free air" mounting will reduce the power handling of any subwoofer compared to an application using an enclosure.

Finally, any deviation from recommended enclosure volumes or port dimensions should be made using dedicated enclosure-design software, such as JBL Speakershop™. If this type of software is not available to you, look for assistance on JBL's Web site at www.jbl.com or from your authorized JBL dealer.

Your Car and Bass Reproduction

Depending on the size of the vehicle's interior listening space, reproduced frequencies below 80Hz are actually boosted by nearly 12dB per octave as frequency decreases. NOTE: This effect, known as the vehicle's transfer function, plays an important part in shaping the overall in-car response and is displayed graphically along with freespace response on the enclosed data sheet for your Decade Series subwoofer.

Enclosure Calculations and Building Boxes

Use the recommended box designs on the enclosed data sheet. Choose cabinet dimensions to fit your vehicle, but do not change the enclosure's volume. Doing so will change the tuning frequency of the enclosure and may adversely affect final performance. If you cannot perform the necessary calculations yourself, please contact your authorized JBL dealer for help and for information about JBL Speakershop, a dedicated enclosure-design software program for experienced car-audio enthusiasts.

In addition, there are a number of points you'll want to keep in mind as you construct an enclosure:

1. Use 3/4" (19mm) MDF (medium-density fiberboard) or marine birch plywood to build an enclosure. Enclosures for 12" and larger subwoofers, or small subwoofers driven by high power amplifiers, should be constructed using 1" (25mm) material.
2. Seal all joints with glue and screws; do not use nails. We recommend "deck" or "zip" screws since they have coarse threads for better grip and don't require pre-drilling holes. Once the box has been tested, seal all interior joints with silicone caulk.
3. Depending on the application, fill the enclosure according to the design you have chosen from the enclosed data sheet in one of three ways: zero-percent fill (i.e., no fill), 50-percent fill (i.e., 1"-thick polyfill sheets on all inside walls except where subwoofer is mounted), or 100-percent fill (i.e., entire box is stuffed with loosely packed polyester fiberfill).

4. Use PVC or ABS pipe for ports. Keep in mind that the openings at either end of the port must be at least one port diameter away from any obstructions, including filling material inside the box. Rectangular vents can be used as long as the cross-section surface area matches the recommended port-area values in the enclosed data sheet.

Power-Handling Limitations

The power-handling capability of any woofer is related to both its ability to dissipate heat and maximum excursion limits of its cone. Once the speaker's voice coil moves outside the magnetic gap, power can no longer be converted into motion and all the amplifier's power is converted into heat in the voice coil. This voice-coil heating is the largest detriment to speaker longevity, so overexcursion should be avoided. Since speaker-cone excursion is different for each type of enclosure, power handling is different for each enclosure.

- Voice-coil overheating and burning, due to overexcursion, are often caused by overdriving an amplifier into "clipping." A severely clipped signal, or square wave, contains nearly twice the power of a clean sine wave at the same level. Bass that sounds broken up and distorted at higher volumes usually indicates that the amplifier is clipping and is being asked to deliver power beyond its rated power.
- Infinite baffle or "free air" mounting applications allow for greater cone excursion than subwoofers mounted in an enclosure. In order to compensate, recognize that the power-rating value of the subwoofer will likely be half its rated power in this application.

Sealed enclosures exert the most control over the motion of a subwoofer because the air acts like a spring against the motion of the woofer cone. Larger boxes allow for more excursion, thus providing more low-frequency output for the amount of power used. When placed in a sealed box larger than its compliance (*Vas*), the subwoofer will perform as if it were in an infinite baffle installation.

Vented and bandpass enclosures have the lowest amount of excursion for the amount of sound output. This is a result of port tuning reinforcing the sound output of the speaker. Vented boxes do not provide adequate woofer control when driven below the port tuning range, so proper design is important. A vented bandpass box will have the lowest overall cone excursion at the expense of limited bandwidth.

- Study the excursion curves on the enclosed JBL Decade Series data sheet and note the differences for different enclosure applications. The type and size of box used will produce different excursion demands on the enclosed subwoofer and, consequently, different levels of power handling. As long as recommended parameters are used, the subwoofer will perform properly in its enclosed environment. However, any design deviation may result in less than optimum performance, and may also subject the subwoofer to overexcursion (i.e., where the voice coil leaves the gap) that can eventually damage the speaker. For additional help with this issue, please contact your authorized JBL dealer.

Specifications
DS100, DS120

Specifications	DS100	DS120
Configuration	10" woofer	12" woofer
Recommended amplifier power range:	18 – 150W	18 – 200W
Sensitivity @ 2.83V/1m:	93dB	95dB
Frequency Response:	35Hz – 3.5kHz	30Hz – 3kHz
Mounting Depth:	4-3/8" (112mm)	5-1/16" (129mm)
Cut-out Diameter:	9" (229mm)	10-7/8" (277mm)

Declaration of Conformity

CE

We, JBL Europe A/S
Kongevejen 194B
DK-3460 Birkerød
DENMARK

declare in own responsibility, that the products described in this owner's manual are in compliance with technical standards:

EN 50 081-1/1992

EN 50 082-1/3.1995

Steen Michaelsen
JBL Europe A/S
Birkerød. DENMARK. 3/98

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Part No. DS100/120OM

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