

SPECIFICATIONS Low Max™ 15 and 18

Suggested enclosures

For those who want to build their own enclosures but don't want to go through the design process using driver parameters, we provide the following optimized designs:

ENCLOSURES	Net volume cubic feet/liters	Vent diameter (qty) inches/mm	Vent length inches/mm	V _b box turning frequency in Hz	F ₃ -3db point in Hz
Lo Max 15					
Small vented box	2.0 / 56.6	(4) 2" / 51	7-1/2" / 191	41	50
Medium vented box	3.0 / 85.0	(4) 3" / 76	12" / 305	40	38
Large vented box	4.0 / 113.3	(4) 3" / 76	9" / 229	39	34
Lo Max 18					
Small vented box	4.0 / 113.3	(4) 4" / 102	12-1/2" / 318	44	44
Medium vented box	6.0 / 170.0	(4) 4" / 102	10" / 254	39	37
Large vented box	8.0 / 226.6	(4) 4" / 102	10-5/8" / 270	33	31

Lo Max 15:

- 1. Small vented box**
This incredibly tiny enclosure has good bass performance and serious power capacity. An excellent choice for very compact, high powered systems and bass guitar/keyboard enclosures.
- 2. Medium vented box**
This enclosure is an exceptional compromise of deep bass extension, high power handling and compact size. Remarkable bass extension and power handling.
- 3. Large vented box**
The large vented box generates incredibly powerful deep bass and is usable to 28 Hz (-10 dB limit) at sound reinforcement SPL levels. As is typical with large vented enclosures, power handling is reduced about 20%.

Lo Max 18:

- 1. Small vented box**
The massive 4" diameter voice coil uses polyimide-insulated copper ribbon wire, The stunning, 28 lb., chrome-plated Lo Max magnet structure is all new and was truly amazing. The extremely high power handling and more than 1.5" of available This enclosure is as small as many 15" cabinets, but has better bass performance and handles tons of power. This design would be an excellent choice for large touring systems due to the increased number of enclosures possible in the same load-out volume
- 2. Medium vented box**
This enclosure is an exceptional compromise of deep bass extension, high power handling and reasonable size. It is capable of extremely high output (below 35 Hz) for excellent performance.
- 3. Large vented box**
The large vented box produces skull-crushing levels of extremely deep bass and is usable to 24 Hz (-10 dB limit) at sound reinforcement SPL levels. As typical with large vented enclosures, power handling is reduced by about 20%.

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Kevlar® is a registered trademark of DuPont.

Nomex® is a registered trademark of DuPont.

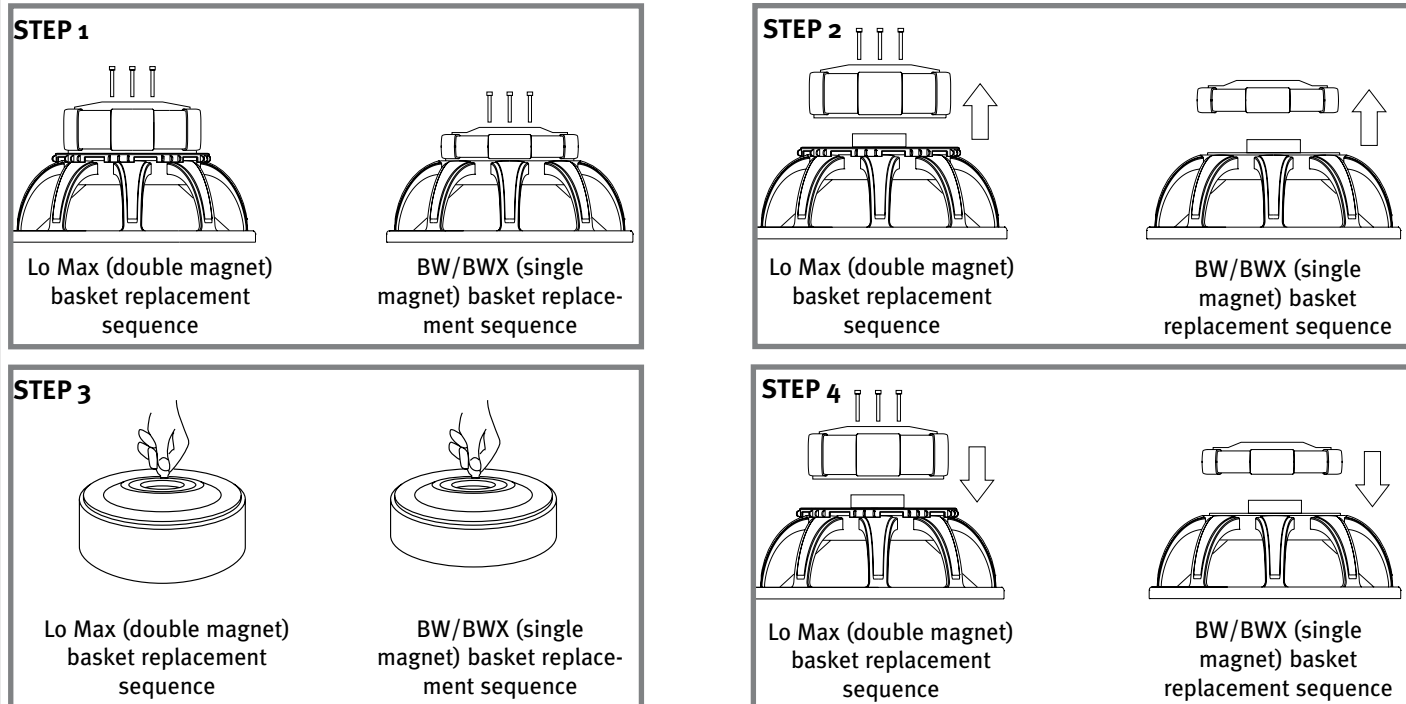
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REPLACEMENT OF SPEAKER BASKET ASSEMBLY

Prior to replacement procedure, clean work area of all metal objects and other debris.

1. With speaker lying face down, remove the three screws on back of magnet structure with 3/16" hex key.
2. After screws are removed, lift the magnet structure off the basket frame.
3. Clean the voice coil gap before magnet structure is put on new replacement basket. (See illustration.) Fold a piece of masking tape over on itself several times, sticky side out, and insert it into the voice coil gap. Run it all the way around the gap several times to remove all particles of metal and other trash before the magnet structure is put on the new replacement basket.
4. Holding magnet structure in a slanted position, gently lower the structure down into the basket so that it rests inside the magnet structure counter bore, being sure to align the screw holes, and lower the structure down into place. Insert screws and tighten.



ONE YEAR LIMITED WARRANTY

NOTE: For details, refer to the warranty statement. Copies of this statement may be obtained by contacting Peavey Electronics Corporation, P.O. Box 2989, Meridian, MS 39335



Features and specifications subject to change without notice.

Peavey Electronics Corporation

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INTRODUCTION

Finally, there's a subwoofer driver that just might be stronger than your biggest amplifier. With an almost inconceivable power handling capacity of 2,400 watts program, the Lo Max has more real-world power handling than any other commercially available sound reinforcement loudspeaker. A no-compromise design combines this power capacity with high efficiency, excellent frequency response and low distortion for revolutionary performance. It even works well in compact enclosures.

DESIGN

The Lo Max utilizes the same strong Kevlar® composite cone and dustcap used in the Low Rider® series. The cone is strong and tough, and uses an innovative asymmetrical-M surround for superior excursion and motion control.

High quality gold-on-brass spring plunger terminals accepting large gauge wire are attached to large diameter, high current tinsel leads to withstand high current, high temperatures and long excursion. The tinsel termination is coated with an elastomer material to improve flex life.

The massive 4" diameter voice coil uses polyimide-insulated copper ribbon wire, edge-wound and bonded onto an incredibly durable and heat resistant polyimide composite former. With a winding height of 1.150", the long coil has much more surface area to dissipate heat and its increased length drives the cone to far higher excursion. The coil is overcoated with a tough thermoset epoxy for added durability, abrasion resistance and heat dissipation.

Coil wires are solderless diffusion welded to high conductivity OFHC copper ribbon leads, which are embedded inside the former assembly and soldered to the tinsel leads with high temperature silver solder. The solder joint is then coated with a special thermally conductive silicone adhesive for encapsulation and heat dissipation.

The voice coil assembly is bonded to the Kevlar composite cone and incredibly tough, plastiseal-coated Nomex progressive-roll spider using a thermoset epoxy originally developed for attaching nose cones on ICBM missiles – truly an aerospace-grade adhesive.

The stunning, 28 lb., chrome-plated Lo Max magnet structure is all new and was designed using extensive Finite Element computer modeling. Its back plate/pole piece is forged from a single massive billet of ultra-low carbon steel and is a prime example of form following function. The pole is extended well beyond the 12.5 mm thick front plate to improve magnetic linearity and coil cooling. The magnet structure is powered by two full-size Black Widow® magnets in a stacked configuration.

A specially designed vent plate adds additional cooling for the voice coil. This heat-conductive, ported and finned aluminum ring delivers cool air pumped by the spider directly to the voice coil to keep operating temperatures under control. The improved cooling increases power handling and reliability and reduces power compression.

The new aluminum frame is tough and rigid, with the strength needed to hold the cone and magnet in perfect alignment. The deep dish design and large spider clearance make high excursion and



high output possible.

These dynamic new drivers also utilize the user-friendly Black Widow replaceable basket assemblies with rubatex gaskets.

The result of all these specially designed components are loudspeakers that are truly amazing. The extremely high power handling and more than 1.5" of available cone travel combine for astonishing low frequency output, while the possibility of small enclosures adds a new dimension to compact, high output sound reinforcement systems.

APPLICATIONS

The Lo Max is specifically designed for subwoofer use, with extremely high output capabilities and almost inconceivable power handling. It is usable to 500 Hz, although most subwoofer applications will be below 150 Hz.

The compact enclosure designs are ideal for instrument amplification and high portability applications such as DJ and small touring bands. They provide solid bass performance in extraordinarily small enclosures. The very small size offers interesting possibilities to large touring systems due to reduced load-out volume.

The medium-sized enclosures are still smaller than usual and have more bass extension and much higher output capabilities than conventional designs. They are excellent choices for high performance sound reinforcement.

For permanent installations and applications requiring extremely deep bass performance, the large, vented enclosures are ideal. The extreme, deep bass and high sound pressure levels these systems can produce are almost beyond comprehension.

The extremely high output capabilities of Lo Max drivers increase the probability of structural damage to buildings, as well as possibly inducing permanent hearing loss, nausea, vertigo and intestinal disturbances in listeners. In particular, tiles may loosen and fall from suspended ceiling grids.



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ENCLOSURES

To assist with the growing interest in home-built enclosure designs, Peavey provides complete parameter data on this driver as well as providing the user with several recommended enclosure designs. This information and much more can be found at www.peavey.com.

Lo Max drivers are intended for use in vented enclosures only. Other enclosure designs such as sealed, horn-loaded, bandpass and infinite baffle will result in reduced performance and/or possible driver overheating and failure.

Since vented enclosures allow driver over-excursion at frequencies below vent tuning, active filtering absolutely must be included with amplifiers greater than 750 watts. This filter should be a high pass 24 dB Butterworth at a minimum of 32 Hz for the 15" and 28 Hz for the 18". Filtering is also recommended below 750 watts in order to conserve amplifier power. Failure to use high-pass filtering with high power operation may cause driver damage that could void your warranty.

Enclosures should be built of best-quality 3/4" to 1-1/4" (20 mm to 32 mm) marine, 7-ply birch or other high-grade plywood. Use of construction-grade plywood is strongly discouraged, but if no better material is available choose grade BC or better and don't use wood with loose plies or voids. Do not use plywood thinner than 3/4" Other materials such as particle board and MDF are not acceptable.

Use a quality wood glue and fit joints tightly. Dado corner joints are highly recommended. Wood screws or a pneumatic nailer should be used to assemble the enclosure during gluing to maximize joint strength.

The strength of the completed enclosure has a great effect on the bass performance of the finished system. Internal bracing will be required to improve the structural stiffness of the cabinet. The Lo Max drivers will generate enormous forces inside the enclosure, and panels that are not stiff enough will vibrate and cancel bass output while producing undesirable resonances.

Vents shown in the examples require standard Schedule 40 PVC pipe for vent construction. The pipe should be dadoed tightly into the back of the baffle and glued firmly in place with high quality epoxy or high strength industrial grade hot glue. Rough up the outside of the pipe to improve the glue bond. Radius the insides of the vent ends to improve air flow and reduce vent noise.

Lo Max drivers generate huge amounts of heat at high power. This heat is transferred to the air in the enclosure as it is dissipated. For long-term (i.e., greater than 15 minutes) high power operation, this heated air must escape and be replaced by cooler air. Enclosure vents should be placed at the top and bottom of the baffle so heated air will flow up and out of the top vents to be replaced by cool air entering through the bottom vents. Enclosures not designed in this way will be thermally de-rated, and will not be capable of sustained operation at high power due to heat build-up.

Vents for these enclosures are much longer than typical for a sound reinforcement subwoofer. This reflects the special characteristics of the Lo Max's design that make it possible to combine a large, high-excursion woofer with an unusually small enclosure. For best performance, the inside ends of the vents should be a distance of at least one vent diameter from any interior wall of the enclosure. The vent should be straight, without elbow fittings or other methods to bend it for greater length. Vent diameter should not be decreased, as high air velocity will result in noise and reduced power handling.

Be sure to allow for the displacement of the vent, bracing and woofer in your enclosure design before building it. Mistakes in net volume will mistune the enclosure and can drastically reduce performance. This will require considerable planning before construction, but is well worth the extra effort.

Line the inside of the enclosure with polyester fiber batting such as quilt stuffing. The batting material should conform to California bedding fire codes. Attach the batting with spray adhesive or staples and keep it away from the end of the vent tubes, where it could be pulled in by air flow.

Handles, protective corners, cabinet covering, grille materials and crossovers are available through Peavey Accessories. Take particular care when positioning the handles, as subwoofers tend to be large and heavy.

Do not use 1/4" phone plugs or jacks in the construction of your enclosures. The power capacity of Lo Max drivers is well above safe limits for phone plugs and jacks, and their use may constitute a fire hazard. Neutrik® Speakon® connectors are highly recommended, and internal cabinet wiring should be at least 16-gauge stranded copper wire.

Flying of subwoofers is not recommended. An array of subwoofer enclosures at ground level will typically outperform any other possible arrangement. Peavey does not sell hardware used for enclosure suspension. Only systems certified for suspension should be flown.

These instructions are a general guideline for design. Proper construction techniques, good planning and common sense will result in a reliable, high quality, high performance system.

Peavey in no way accepts liability for any damage, accidents or injury that may result from design, construction or operation of enclosures using this information.

PARAMETERS

Thiele-Small parameters for Lo Max 15" and 18" subwoofer drivers follow. This data is for use in designing enclosures. Numerous software packages are available that use this data to simulate the response of the driver and enclosure together for optimum performance in any application.

PARAMETER DEFINITIONS

- Znom:** The nominal impedance of the driver in ohms.
- Revc:** DC resistance of the driver in ohms Also known as Re.
- Sd:** The functional radiating surface area of the cone assembly in meters².
- BL:** Efficiency of the voice coil and magnet system in Telsa Meters.
- Fo:** Also known as Fs, the free air resonance of the driver.
- Vas:** Volume of air having the same compliance (springiness) as the driver's suspension.
- Cms:** Restorative force of the driver's suspension in micrometers/Newton.
- Mms:** The total mass of the moving parts of the loudspeaker, including the air load, in grams.
- Qms:** Resonance characteristics of the mechanical factors of the loudspeaker.
- Qes:** Resonance characteristics of electrical factors of the loudspeaker.
- Qts:** Resonance characteristics of the electrical and mechanical factors combined together.

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Xmax: Distance the cone can move in one direction before the coil begins to leave the magnetic gap.

Le: Inductance of the voice coil in millihenries.

SPL: Typical sound pressure level at 1 watt, 1 meter.

no: Electrical-to-acoustical conversion efficiency in percent.

Vd: Air displacement of the driver from negative Xmax to positive Xmax, in milliliters.

Pmax: Maximum continuous program power in watts.

Disp: Volume displaced by the driver inside the cabinet when mounted on its rear flange, in inches³.

SPECIFICATIONS	Lo Max 15	Lo Max 18
Part #	00560290	00560400
Size	15" / 380 mm nominal	18" / 460" nominal
Frame OD	15-1/4" / 387 mm	18-1/8" / 460 mm
Bolt circle	14-9/16" / 370 mm	17-3/8" / 441 mm
Cutout diameter	14-1/8" / 359 mm	16-3/4" / 425 mm
Depth	7-1/2" / 190.5 mm	8-1/8" / 200 mm
Impedance:	8 ohms	8 ohms
Power Capacity:	4,800 watts peak 2,400 watts program 1,200 watts continuous per AES 2-1984 40 Hz – 400 Hz	4,800 watts peak 2,400 watts program 1,200 watts continuous per AES 2-1984 40 Hz – 400 Hz
Usable frequency range:	30 Hz ~ 500 Hz	25 Hz ~ 500 Hz
Cone:	Kevlar-impregnated cellulose	Kevlar-impregnated cellulose
Voice coil dia:	100 mm	100 mm
Voice coil material:	Polyimide coated copper ribbon wire Poly-imide-impregnated fiberglass former Nomex® stiffener Solderless diffusion welded OFHC copper leads	Polyimide coated copper ribbon wire Poly-imide-impregnated fiberglass former Nomex® stiffener Solderless diffusion welded OFHC copper leads
Net weight:	32.5 lbs. / 14.8 kg	33.5 lbs. / 15.2 kg
Znom (ohms)	8	8
Revc (ohms)	5.4	5.4
Sd (Square Meters)	0.089	0.118
BL (T/M)	23.40	23.40
Fo (Hz)	38.5	31.5
Vas (liters)	124	294.4
Cms (uM/N)	110.8	140
Mms (gm)	146	194.68
Qms	11.0	11.15
Qes	0.405	0.4
Qts	0.385	0.386
Xmax	10.2	10.2
Le (mH)	0.751	0.751
SPL (1 WATT 1 M)	95.5	95.5
No (%)	2.2	2.2
Vd in ³ / (milliliters)	55.15 / 904	73.06 / 1197
Pmax (watts pgm.)	2,400	2,400
Disp in ³ / milliliters	241.7 / 3960	310 / 5080

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