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

ENCLOSURES	Net Volume cubic feet/liters	Vent diameter (qty) inches/mm	Vent length inches/mm	V_b box tuning frequency in Hz	F_3, -3 dB point in H
Small vented box	5.0 / 142	(2) 6" / 152	15.25 / 387	37	40
Medium vented box	6.75 / 191	(2) 6" 152	12.75 / 324	34	35
Large vented box	9 / 255	(2) 6" 152	12 / 305	30	31
Single reflex bandpass	Sealed: 4.0 / 113 Vented: 3.5 / 85	(2) 6" / 152	5.0	65	40 - 104

1. **Small vented box**
This enclosure is as small as many 15" cabinets, 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 40 Hz for excellent performance.

3. **Large vented box**
The large vented box produces superb performance in the bottom octave for high level playback, movie theater, special effects and permanent installation. The enclosure reduces power handling by about 15% but offers useful output to 25 Hz.

4. **Single-reflex bandpass**
Special enclosure design that uses the enclosure as an acoustic filter for shaped response. Not as efficient as a vented system, but it doesn't require a crossover for subwoofer use.

REPLACEMENT OF SPEAKER BASKET ASSEMBLY

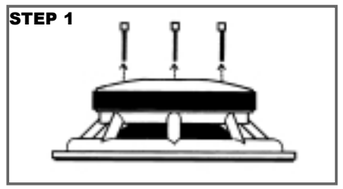
1. Prior to replacement procedure, clean work area of all metal objects and other debris.

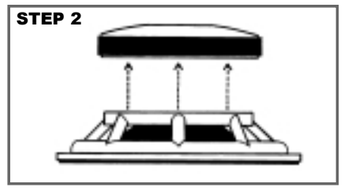
2. With speaker lying face down, remove the three screws on back of magnet structure with 7/16" nut driver.

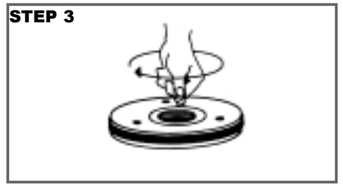
3.. After screws are removed, lift the magnet structure off the basket frame.

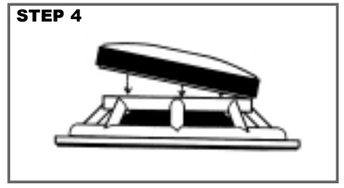
4. Clean the voice coil "gap" before magnet structure is put on new replacement basket. (See illustration.) Fold a piece of masking tape over on itself several times, sticky side out, and insert it into the voice coil "gap." Run it all the way around the "gap" several times to remove all particles of metal and other trash before magnet structure is put on new replacement basket.

5. Holding magnet structure in 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

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Features and specifications subject to change without notice.

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SPECS

PEAVEY ELECTRONICS

Peavey Low Rider™ 18 00479910

INTRODUCTION

The new Low Rider 18" driver is a milestone in high-power subwoofer design. An incredible 1,600 Watt program rating and extra-long cone excursion add up to amazing new levels of clean, deep bass.

The Low Rider 18 is an superior choice for the bottom end of any high powered sound system, from DJ rigs to the largest professional touring shows.

DESIGN

The Low Rider 18 utilizes a new cone that is a variation on the existing Kevlar®-impregnated cones used on all Black Widow speakers. The new cone is stronger and tougher and uses an innovative asymmetrical-M surround for superior excursion and motion control.

High quality spring terminals accepting large gauge wire are attached to large diameter, high current tinsel leads with silver solder to withstand high current, high temperatures and long excursion.

The massive new voice coil uses polyimide-insulated copper ribbon wire, edge-wound and bonded onto an incredibly durable and heat resistant polyimide composite former. The coil's winding length of 1.150" is an amazing 80% longer than Peavey's standard 18" Black Widow coil. 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.

The 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 cone and new, 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 spider and surround are bonded to the frame with a high strength toughened-cyanoacrylate adhesive, which is also used to bond the dust cap to the cone.

The magnet structure is all-new, and was designed using extensive Finite Element computer modeling. The back plate/pole piece is cold-forged from a single massive billet of ultra-low carbon steel, includes Peavey's patented Focused Field Geometry, and is undercut to allow greater coil travel. The pole is extended beyond the front plate to improve magnetic linearity and coil cooling, and the front plate is a full 10 mm thick to match the long voice coil and provide a better path for heat and magnetic energy. The result is fully 50% more total magnetic gap energy than can be found in the standard Black Widow Super Structure magnet assembly.

A patent-applied-for 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 cast 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 is a loudspeaker that is truly amazing. The extremely high power handling and available 1.4" of cone travel combine for astonishing low frequency output, while the possibility of small enclosures adds a new dimension in compact, high output sound reinforcement systems.

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APPLICATIONS

The Low Rider 18 is specifically designed for subwoofer use, with extremely high output capabilities and massive power handling. It is usable to 500 Hz, although most subwoofer applications will be below 150 Hz.

Best performance for this driver will be with vented enclosures between 5 and 9 cubic feet (142 to 255 liters), and vent tunings from 30 to 45 Hz. The Low Rider 18 is optimized for vented systems but will also work with appropriate single-reflex bandpass enclosures. Sealed, infinite baffle, transmission line, and dual reflex bandpass enclosures are not recommended.

When the Low Rider 18 is driven with a power amplifier greater than 750 Watts, active filtering must be included. This filter should be a high pass 24 dB Butterworth at a minimum of 25 Hz. Failure to use filtering with high power operation may cause driver damage that could void your warranty.

The extremely high output capabilities of the Low Rider 18 introduce the possibility of causing structural damage to buildings, as well as inducing permanent hearing loss, nausea, vertigo and intestinal disturbances in listeners. Please take care in setting maximum sound pressure levels.

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.

Enclosures should be built of best-quality 3/4" to 1-1/4" (20 mm to 32 mm) marine or other high grade plywood. If you must use construction grade plywood, inspect each sheet thoroughly and use grade BC or better. 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. Use wood screws or a pneumatic nailer to assemble the enclosure during gluing, to maximize joint strength.

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 design strength of the cabinet. The Low Rider 18 can generate enormous forces inside the enclosure, and panels that aren't stiff enough will vibrate - creating undesired sounds of their own. If your cabinet vibrates or the cabinet panels are not stiff enough, add more bracing.

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.

Vents for these enclosures are much longer than typical for an 18" subwoofer. This reflects the special characteristics of the Low Rider'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 at least one diameter (6" / 150 mm) from any interior wall of the enclosure. The vent should be straight, without elbow fittings or other methods to bend the vent 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. Smaller volume cabinets will reduce bass output and mis-tune the enclosure.

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 material away from the end of the vent tube 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 in positioning of handles as subwoofers tend to be large and heavy.

Do not use 1/4" phone plugs and jacks in the construction of your enclosures. Power capacity of the Low Rider 18 is well above safe limits for phone plugs and jacks. 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.

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 construction or use of enclosures using this information.

PARAMETERS

Thiele-Small parameters for Low Rider 18" subwoofer 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

Z_{nom}: The nominal impedance of the driver in Ohms.

R_{evc}: DC resistance of the driver in Ohms. Also known as R_e.

S_d: The functional radiating surface area of the cone assembly, in meters^2.

BL: Efficiency of the voice coil and magnet system in Telsa meters.

F_o: Free air resonance. Also known as Fs.

V_{as}: Volume of air having the same compliance (springiness) as the driver's suspension.

C_{ms}: Restorative force of the driver's suspension in micrometers/Newton.

M_{ms}: The total mass of the moving parts of the loudspeaker, including the air load, in grams.

Q_{ms}: Resonance characteristics of the mechanical factors of the loudspeaker.

Q_{es}: Resonance characteristics of electrical factors of the loudspeaker.

Q_{ts}: Resonance characteristics of the electrical and mechanical factors combined together.

X_{max}: Distance the cone can move in one direction before the coil begins to leave the magnetic gap.

L_e: Inductance of the voice coil in millihenries.

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

n_o: Electrical-to-acoustical conversion efficiency in percent.

V_d: Air displacement of the driver from negative Xmax to positive Xmax .

P_{max}: Maximum continuous program power in Watts.

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

SPECIFICATIONS	1808-8HPS Low Rider 18
Part #	00479910
Size: inches / mm	18" / 460 nominal
Frame OD inches / mm	18-1/8" / 460
Bolt circle inches / mm	17-3/8" / 441
Cutout diameter inches/mm	16-3/4" / 425
Depth	6-3/8" / 162
Impedance:	8 Ohms
Power Capacity:	3200 W peak 1600 W program 800 W continuous per AES 2-1984, 50 Hz – 500 Hz
Usable frequency range:	25 Hz ~ 500 Hz
Cone:	Kevlar® impregnated cellulose
Voice coil diameter:	100 mm
Voice coil material:	Polyimide coated copper ribbon wire Polyimide-impregnated fiberglass former Nomex® stiffener Ultrasonically welded OFHC copper leads
Net weight lb. / kg:	22 / 10
Z_{nom}(Ohms)	8
R_{evc} (Ohms)	6.21
S_d (Square Meters)	0.1237
BL (T/M)	22.73
F_o (Hz)	28.9
V_{as} (liters)	403.9
C_{ms} (uM/N)	185.9
M_{ms} (gm)	163.2
Q_{ms}	8.770
Q_{es}	.356
Q_{ts}	.342
X_{max} (mm)	9.6
L_e (mH)	.87
SPL (1W 1m)	97.3
n_o (%)	2.65
V_d cubic inches / milliliters	145 / 2375
P_{max} (Watts pgm.)	1600
Disp (inches^3) / milliliters	235 / 3852