

PEAVEY ELECTRONICS

Black Widow® Super Structure™

High Efficiency
High Reliability
High Output

SPECIFICATIONS

INTRODUCTION

The Black Widow®/Super Structure™ still remains far ahead of any of its competitors due to its performance and unique design. These state-of-the-art speakers feature Kevlar® impregnated cones and a high efficiency magnet structure to provide outstanding sensitivity, reliability, and performance. The Kevlar impregnated cone is stiffer than an equivalent weight paper cone, reducing the tendency of the cone to distort the shape of the voice coil, thus avoiding rubs and scrapes. Superior power handling results from the increased stiffness, especially with large cone excursions. This cone also offers lower distortion than a paper cone due to a greater dampening of unwanted cone vibrations. The piston action of the Kevlar impregnated cone is extended to a higher-frequency, while the range above is better controlled, with a reduction in vibrational break-up.

In Black Widow models 1203 and 1501DT, where the properties of a Kevlar impregnated cone might not be desirable, such as speakers designed for guitar use, a specially formulated paper cone (along with other Peavey engineered factors) is utilized to promote that distinctive tone.

The magnet structure features a



patented Peavey technology: a one piece die-cast back plate/pole piece assembly. This construction eliminates an undesirable "air gap" in the magnet circuit, enhancing efficiency and reliability.

Another Peavey original is the design of the speaker framework. In the unlikely event of the failure of a Black Widow loudspeaker, the cone/basket assembly is field replaceable with a factory assembled and tested replacement basket assembly. Instead of being forced to obtain a whole new speaker, only a new basket assembly is required. Lightweight and relatively inexpensive, the replaceable basket assembly offers an easy solution to spares and repairs.

Along with these state-of-the-art aspects, Black Widow speakers also provide the features expected in a professional application loudspeaker: a four inch edgewound aluminum ribbon voice coil wound on a space-age

polyimide composite former for high efficiency and sensitivity; a die-cast aluminum alloy frame for exacting lifelong alignment of the assembly; an extra large vent in the magnet structure for superior cooling and linearity at high drive levels; and heavy-duty spring-loaded terminals adhering to industry standards for color coding.

The Peavey Black Widow speaker line: the high technology performer that is unsurpassed.



BLACK WIDOW DESCRIPTIONS

12" Black Widow Speakers for: Sound Reinforcement

1201-8 Black Widow

The 1201 is an 8 ohm, 12" Black Widow/SuperStructure™ speaker intended primarily for sound reinforcement. Offering superior sensitivity and power handling in a 12" speaker, the 1201 utilizes a Kevlar™ impregnated cone for a smooth response characteristic well suited to vocals, stage monitors, and other compact applications. This model can also be used to provide outstanding mid-bass performance in a multi-way system.

1205-8 Black Widow

The 1205 is an 8 ohm, 12" Black Widow/Super Structure speaker that is similar to the 1201, except with a longer voice coil and enhanced low frequency response.

Musical Instrument

1203-4 and 8 Black Widows

The 1203 is the 12" Black Widow/Super Structure designed for musical instrument applications. Able to handle high power yet maintain a bright crisp high-end with maximum output, the 1203 is the choice of many demanding musicians. For that high-end "edge," the 1203 utilizes a special paper cone for those distinctive guitar and keyboard sounds. Available in 8 ohm and 4 ohm versions.

Special Applications

1202-4 Black Widow

The 1202 is a 4 ohm, 12" Black Widow/Super Structure designed specifically for use as a compression driver in a horn-loaded mid-bass application. Designed with an inverted dust cap to match up with a phase plug, the Kevlar impregnated cone

resists break-up and cone cry resulting in a smoother response and more viable high frequencies. Not recommended for use as a direct radiator.

15" Black Widow Speakers for: Sound Reinforcement and PA

1505DT-8 Black Widow

The 1505DT is an 8 ohm, 15" Black Widow/Super Structure speaker with a curvilinear cone for extended bandwidth. Offering a rare combination of usable frequency response into the mid-range with a smooth powerful low end, the 1505DT Kevlar cone and long voice coil provide excellent linearity at high drive levels. Excellent as a woofer in multi-way enclosures or as the bottom end in a two-way system.

1505KADT-8 Black Widow

The "KA" version of the 1505 has a medium length voice coil for higher efficiency and even greater bandwidth than the 1505DT-8.

Musical Instrument

1501DT-4 Black Widow

The 1501DT is a 4 ohm, 15" Black Widow/Super Structure speaker specifically voiced for musical instrument use. A "classic" sound is achieved by using a specially developed high density curvilinear paper cone, and incorporating a one-piece aluminum dust cap and voice coil former. Sustain is enhanced while retaining control of the overall tone. Obvious applications include lead guitar and steel guitar.

1502DT-4 and 8 Black Widows

The 1502DT is a 15" Black Widow/Super Structure speaker with a straight-sided, ribbed, Kevlar impregnated cone for the strength required to handle pounding bass lines. Primarily a bass guitar speaker, the 1502 is versatile enough to be used for lead guitar, keyboard, and general pur-

pose low frequency sound reinforcement. The 1502DT-4 is equipped with medium length voice coils for efficiency and high output and is available in 4 and 8 ohm versions.

1505DT-4 Black Widow

The 1505DT-4 is a 4 ohm, 15" Black Widow/Super Structure speaker with a curvilinear Kevlar impregnated cone for extended smooth response. When used as a bass guitar speaker, the high frequencies have a little extra "bite." Long voice coil maintains linearity at high drive levels.

Special Applications

1504DT-4 Black Widow

The 1504DT is a 4 ohm 15" Black Widow/Super Structure speaker designed specifically for use in horn loaded enclosures. Utilizing a straight-sided, ribbed, Kevlar impregnated cone for maximum rigidity, the suspension is more compliant (softer) for high linearity when driving a horn loaded cabinet.

18" Black Widow Speakers for: Sound Reinforcement and PA

1801-8 Black Widow

The 1801 is an 8 ohm, 18" Black Widow/Super Structure speaker which offers the ultimate in deep, extended, bass response while maintaining a high sensitivity and high power capability. This is the woofer of choice for discos subwoofers, special effects, or anywhere low end punch and impact are a must! A long throw voice coil and Kevlar impregnated cone team up for excellent linearity.

Musical Instrument

1801-4 Black Widow

The 1801-4 is a 4 ohm version of the 1801-8 and matches better with the load requirements of musical instrument use.

TECHNICAL DATA

Nominal Size:	12"	15"	18"
Overall Diameter:	12-1/4"	15-1/4"	18-3/16"
Bolt Circle Diameter:	11-5/8"	14-9/16"	17-3/8"
Hole (cut-out) Diameter:	10-15/16"	14"	16-3/4"
Depth:	3-17/32"	5-5/8"	5-17/32"
Weight:	16 lbs.	17 lbs.	18 lbs.

SPECIFICATIONS

Power Handling

Continuous:	350 W [‡]
Program:	700 W [*]
AES:	600 W [∇]

[‡] Continuous power per EIA Standard RS-426A.

^{*} Program rating with a minimum of 3 dB amplifier headroom

[∇] Power capacity for 2 hours per AES Standard 2-1984

THIELE/SMALL DATA INTRODUCTION

The Thiele/Small parameters for Peavey Black Widow speakers are provided for those who like to "roll-their-own" design and construct a custom cabinet for a specific purpose. Modern computer programs have enabled almost anyone to try "what-if" calculations utilizing the Thiele/Small parameters without requiring a complete understanding of the individual parameters.

For the uninitiated, there are no "good" or "bad" Thiele/Small numbers, just relevant design information.

WHAT DOES THE NOTATION MEAN?

R_e	is DC resistance of the voice coil in ohms
F_s	is free air resonance of the speaker cone assembly in Hz
Q_{TS}	is total quality factor in free air
Q_{MS}	is mechanical quality factory
Q_{ES}	is electrical quality factor
V_{AS}	is equivalent volume compliance of suspension in liters
η_o	is efficiency in percents
V_D	is volume of air displaced in milliliters
X_{max}	is 1/2 peak-to-peak maximum cone excursion in millimeters

PARAMETERS

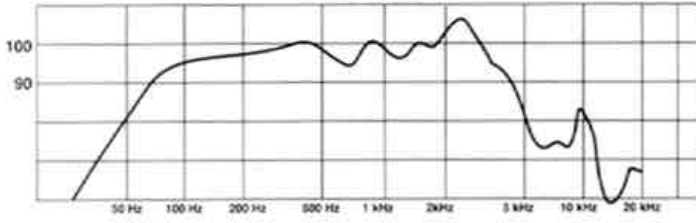
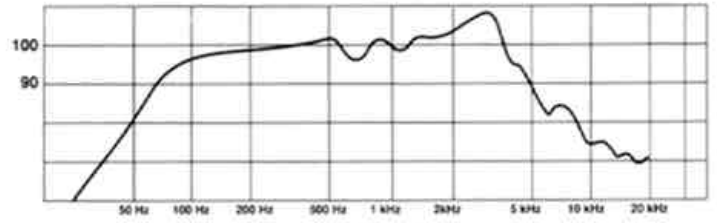
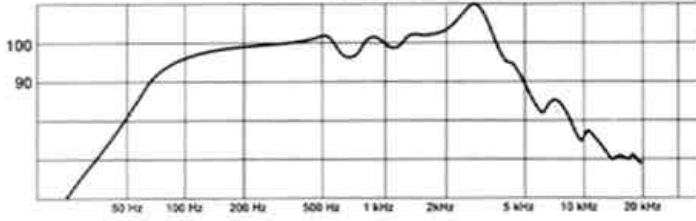
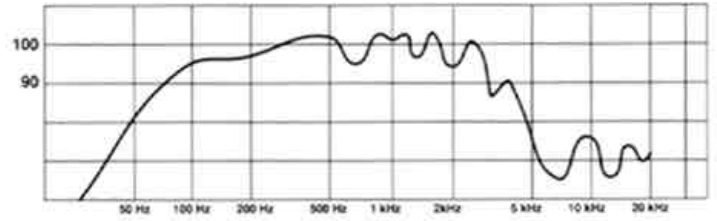
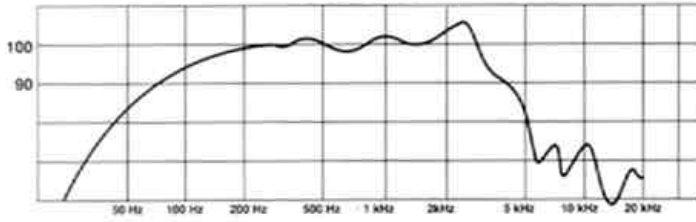
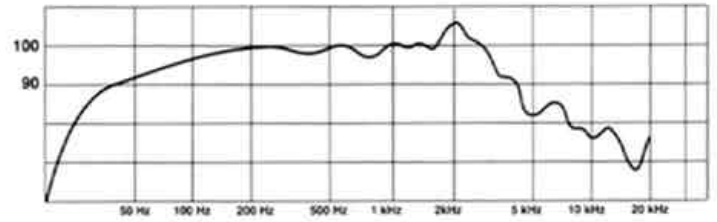
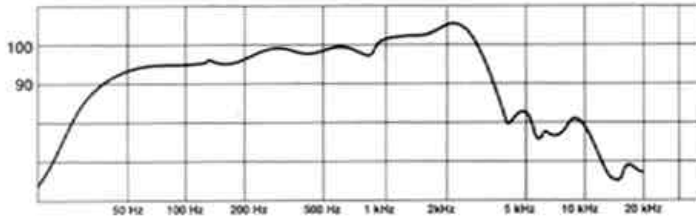
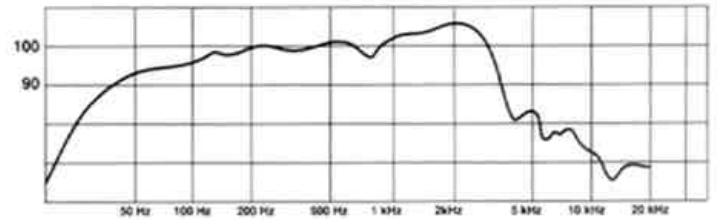
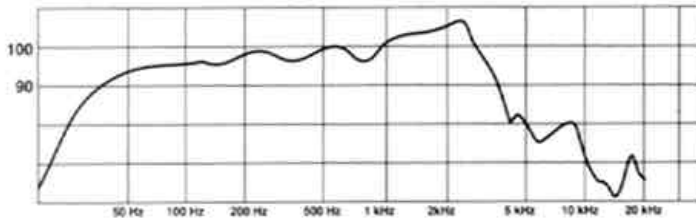
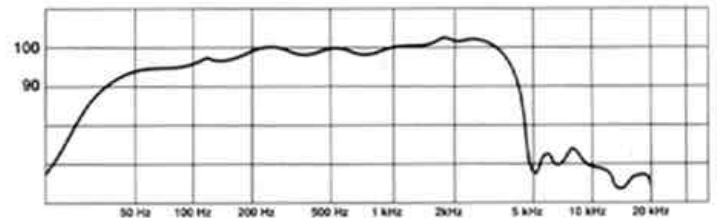
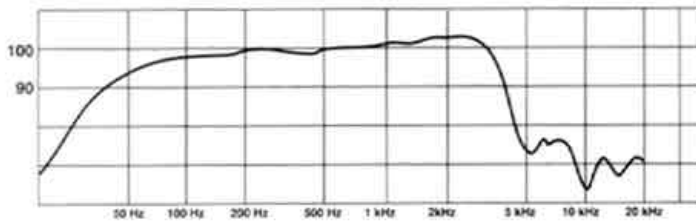
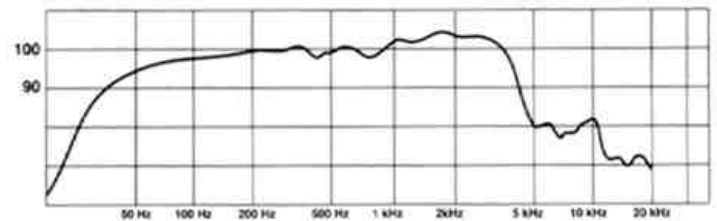
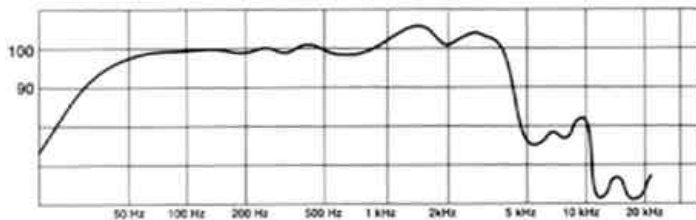
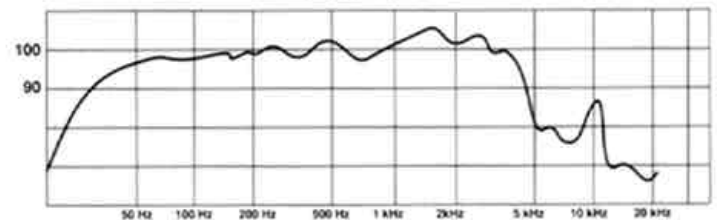
Model #	R_e	F_s	Q_{TS}	Q_{MS}	Q_{ES}	V_{AS}	n_o	X_{max} mm	V_D ml
1201-8	6.1	59.7	.27	6.6	.28	59ℓ	3.8%	±2.6	143
1202-4 inverted dust cap	4.5	47.1	.25	8.2	.26	100ℓ	4.4%	±2.6	143
1203-4	3.0	57.8	.37	7.5	.39	72ℓ	3.1%	±1.0	56
1203-8	6.1	59.4	.38	8.1	.40	69ℓ	3.6%	±1.0	56
1205-8	5.2	55.6	.28	8.7	.29	69ℓ	3.8%	±4.5	247
1501-4DT	3.2	46.7	.34	2.4	.40	188ℓ	4.6%	±1.2	84
1502-4DT	3.2	43.1	.36	7.9	.38	192ℓ	3.7%	±2.8	225
1502-8DT	6.1	42.4	.32	7.5	.34	205ℓ	4.5%	±2.8	225
1504-4DT	3.5	31.3	.29	6.2	.32	385ℓ	3.6%	±3.0	240
1505-4DT	3.2	44.6	.37	8.8	.39	182ℓ	4.0%	±4.8	385
1505-8DT	5.2	44.2	.37	7.8	.39	198ℓ	3.9%	±4.8	385
1505KA-8DT	5.3	44.3	.35	8.1	.37	187ℓ	4.5%	±2.6	208
1801-4	3.5	40.6	.47	8.9	.49	330ℓ	4.3%	±4.6	516
1801-8	6.5	40.2	.61	8.4	.63	321ℓ	3.4%	±4.8	538

RESPONSE CURVES INTRODUCTION

Some notes concerning how the frequency response curves were taken. All the Black Widow models were curved in a suitable box. The 12" models were mounted in a volume of approximately 2 cubic feet, tuned to 80 Hz. The 15" models were mounted in a volume of approximately 3.5 cubic feet tuned to 40 Hz. The 18" models were mounted in a volume of approximately 10.5 cubic feet tuned to 32 Hz. Each box was lined with one layer of acoustic absorbing materials and measured in an anechoic chamber. One watt of input power was used (2 V for 4 ohm models, 2.83 V for 8 ohm models), and the measurement microphone was placed at 1 meter from the speaker on axis with the center of the speaker.

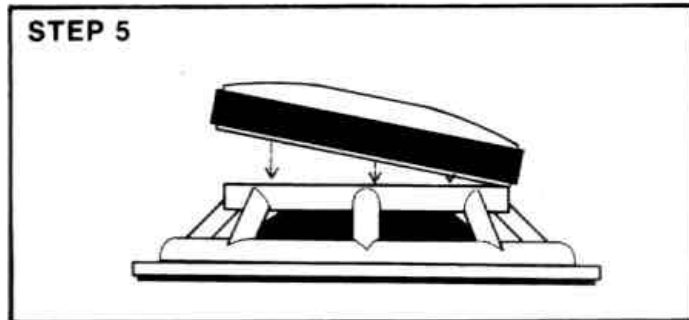
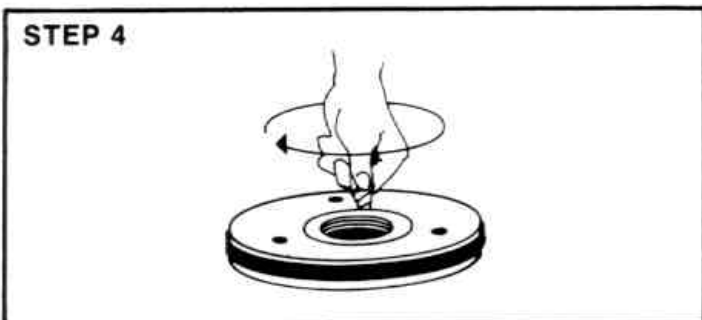
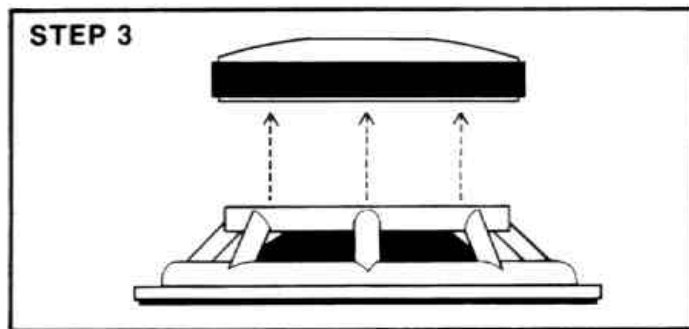
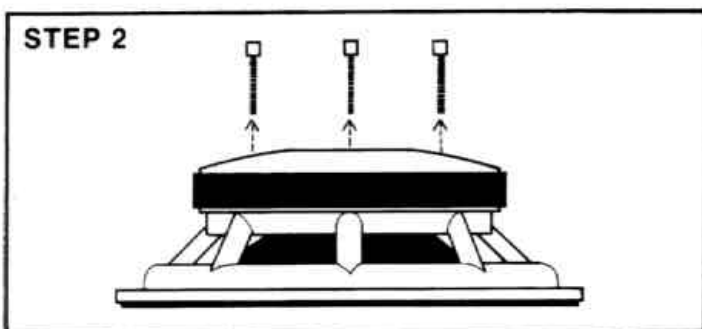
Due to standing waves inside the cabinets, the 12" models exhibit dips at approximately 700 Hz and 1.2 kHz; the 15" models at 400 Hz and 800 Hz; and the 18" models at 320 Hz and 650 Hz. These are related to the internal dimensions of the cabinets and are not inherent in the speakers.

Low bass response (below 200 Hz) is almost completely dictated by the cabinet used with the speaker. Different roll-offs and responses can be achieved with variations in the box volume and/or tuning.

1201-8**1203-8****1203-4****1202-4****1205-8****1501-4DT****1502DT-4****1502DT-8****1504DT-4****1505DT-4****1505DT-8****1505KADT-8****1801-8****1801-4**

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 onto 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,
PO Box 2989, Meridian, MS 39335.



Features and specifications subject to change without notice.



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