SPECS

PEAVEY ELECTRONICS

BLACK WIDOW® SUPER STRUCTURE

HIGH EFFICIENCY – HIGH RELIABILITY – HIGH OUTPUT

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' features 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 breakup.

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 eliminated 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 and 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 edge wound 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.

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 not "good" or "bad" Thiele/Small numbers, just relevant design information.

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 meters 2.

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

Fo: Free air resonance. Also known as Fs.

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.

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.

Pmax: Maximum continuous program power in watts.

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

SPECIFICATIONS	00560700	00560720	00560740	00560040
MODEL	1201-8	1203-4	1203-8	1502-4DT
DIAMETER	12”	12”	12”	15”
IMPEDANCE	8 Ohms	4 Ohms	8 Ohms	4 Ohms
POWER CAPACITY	1400 W peak	1400 W peak	1400 W peak	1400 W peak
	700 W program	700 W program	700 W program	700 W program
	350 W continuous	350 W continuous	350 W continuous	350 W continuous
SENSITIVITY	99.5 dB/1W 1m	98.4 dB/1W 1m	98.3 dB/1W 1m	98.4 dB/1W 1m
USABLE FREQ. RANGE	60 Hz - 3.5 kHz	60 Hz - 3.5 kHz	55 Hz - 4 kHz	40 Hz - 2 kHz
CONE	Kevlar® impregnated cellulose	Kevlar® impregnated cellulose	Kevlar® impregnated cellulose	Kevlar® impregnated cellulose
VOICE COIL DIAMETER	4.0”/100mm	4.0”/100mm	4.0”/100mm	4.0”/100mm
VOICE COIL MATERIAL	Aluminum ribbon wire Polyimide-impregnated fiberglass former Nomex® stiffener Solderless diffusion welded OFHC copper leads	Aluminum ribbon wire Polyimide-impregnated fiberglass former Nomex® stiffener Solderless diffusion welded OFHC copper leads	Aluminum ribbon wire Polyimide-impregnated fiberglass former Nomex® stiffener Solderless diffusion welded OFHC copper leads	Aluminum ribbon wire Polyimide-impregnated fiberglass former Nomex® stiffener Solderless diffusion welded OFHC copper leads
NET WEIGHT	16 lbs. / 7.3 kg	16 lbs. / 7.3 kg	16 lbs. / 7.3 kg	17 lbs. / 7.7 kg
Znom (ohms)	8	4	8	4
Revc (ohms)	6.52	5.20	5.97	3.66
Sd (square meters)	0.052	0.052	0.052	0.084
BL (T/M)	19.60	19.43	18.44	13.32
Fo (Hz)	57.4	48.8	58.4	46.3
Vas (liters)	66.3	82.3	63.3	179.6
Cms (uM/N)	172.8	214.4	165.0	179.2
Mms (gm)	44.40	49.60	38.20	65.90
Qms	4.84	8.33	7.63	6.69
Qes	0.270	0.210	0.290	0.396
Qts	0.257	0.204	0.280	0.373
Xmax (mm)	2.60	0.44	0.30	2.7
Le (mH)	0.37	0.32	0.33	0.17
SPL (1W 1m)	98.5	98.4	98.3	98.4
No (%)	4.49	3.10	4.20	4.38
Vd (cu in/ml)	16.5 / 270	1.4 / 23	0.95 / 15.6	13.8 / 227
Pmax (Watts pgm)	700	700	700	700
Disp. (cu. in /ml)	109 / 1797	109 / 1797	109 / 1797	197 / 3229
REPLACEMENT BASKET	00560710	00560730	00560750	00560050

SPECIFICATIONS	00560060	00560090	00560120	00560460	00560480
MODEL	1502-8DT	1505-8DT	1505KA-8DT	1801-4	1801-8
DIAMETER	15”	15”	15”	18”	18”
IMPEDANCE	8 Ohms	8 Ohms	8 Ohms	4 Ohms	8 Ohms
POWER CAPACITY	1400 W peak	1400 W peak	1400 W peak	1400 W peak	1400 W peak
	700 W program	700 W program	700 W program	700 W program	700 W program
	350 W continuous	350 W continuous	350 W continuous	350 W continuou	350 W continuous
SENSITIVITY	98.9 dB/1W 1m	97.9 dB/1W 1m	99.0 dB/1W 1m	97.5 dB/1W 1m	97.0 dB/1W 1m
USABLE FREQ. RANGE	40 Hz - 2 kHz	40 Hz - 2 kHz	40 Hz - 2 kHz	35 Hz - 1 kHz	35 Hz - 1 kHz
CONE	Kevlar® impregnated cellulose	Kevlar® impregnated cellulose	Kevlar® impregnated cellulose	Kevlar® impregnated cellulose	
VOICE COIL DIAMETER	4.0”/100MM	4.0”/100MM	4.0”/100MM	4.0”/100MM	4.0”/100MM
VOICE COIL MATERIAL	Aluminum ribbon wire Polyimide-impregnated fiberglass former Nomex® stiffener Solderless diffusion welded OFHC copper leads	Aluminum ribbon wire Polyimide-impregnated fiberglass former Nomex® stiffener Solderless diffusion welded OFHC copper leads	Aluminum ribbon wire Polyimide-impregnated fiberglass former Nomex® stiffener Solderless diffusion welded OFHC copper leads	Aluminum ribbon wire Polyimide-impregnated fiberglass former Nomex® stiffener Solderless diffusion welded OFHC copper leads	Aluminum ribbon wire Polyimide-impregnated fiberglass former Nomex® stiffener Solderless diffusion welded OFHC copper leads
NET WEIGHT	17 lbs. / 7.7 kg	17 lbs. / 7.7 kg	17 lbs. / 7.7 kg	18 lbs. / 8.2 kg	18 lbs. / 8.2 kg
Znom (ohms)	8	8	8	4	8
Revc (ohms)	6.83	5.67	5.23	3.72	6.23
Sd (square meters)	0.084	0.084	0.084	0.124	0.124
BL (T/M)	20.13	16.90	17.70	14.72	18.00
Fo (Hz)	47.8	46.5	50.8	37.3	40.4
Vas (liters)	162.6	164.3	143.5	335.6	284.9
Cms (uM/N)	162.3	164.0	143.3	154.4	131.1
Mms (gm)	68.40	71.40	68.50	117.80	118.00
Qms	5.23	6.50	7.60	8.19	5.59
Qes	0.346	0.414	0.367	0.474	0.577
Qts	0.325	0.389	0.350	0.448	0.523
Xmax (mm)	2.6	5.1	0.9	2.6	5.0
Le (mH)	0.32	0.32	0.28	0.20	0.30
SPL (1W 1m)	98.9	97.9	99.0	97.5	97.0
No (%)	4.97	3.90	4.50	3.57	3.18
Vd (cu in/ml)	13.3 / 218	26.1 / 428	4.6 / 76	39.2 / 642	75.6 / 1239
Pmax (Watts pgm)	700	700	700	700	700
Disp. (cu. in /ml)	197 / 3229	197 / 3229	197 / 3229	228 / 3737	228 / 3737
REPLACEMENT BASKET	00560070	00560100	00560130	00560470	00560490

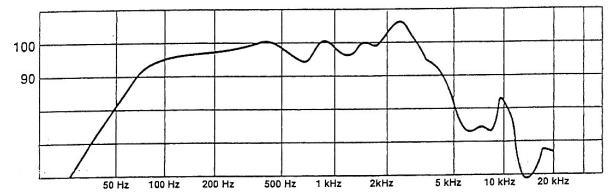
RESPONSE CURVES INTRODUCTION

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” modes 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



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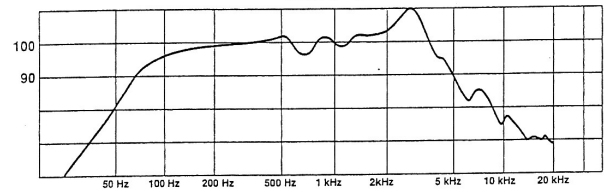

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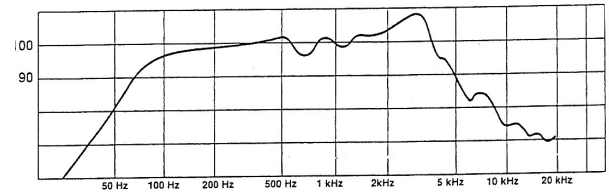

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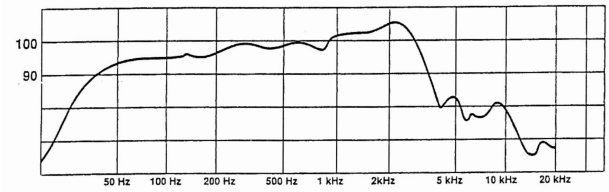

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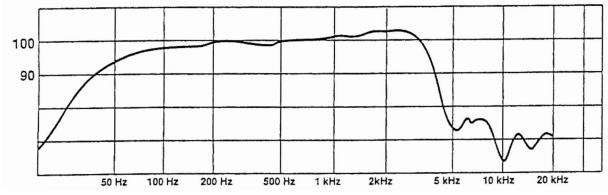

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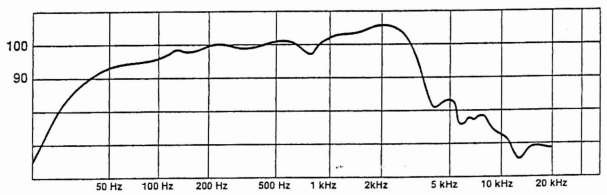

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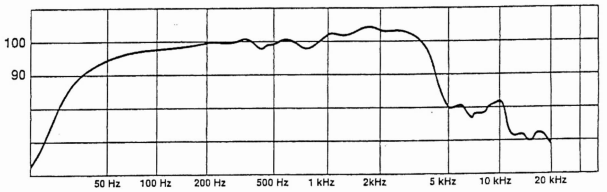

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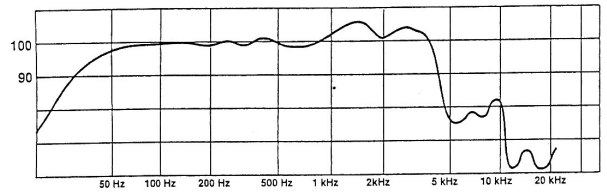

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