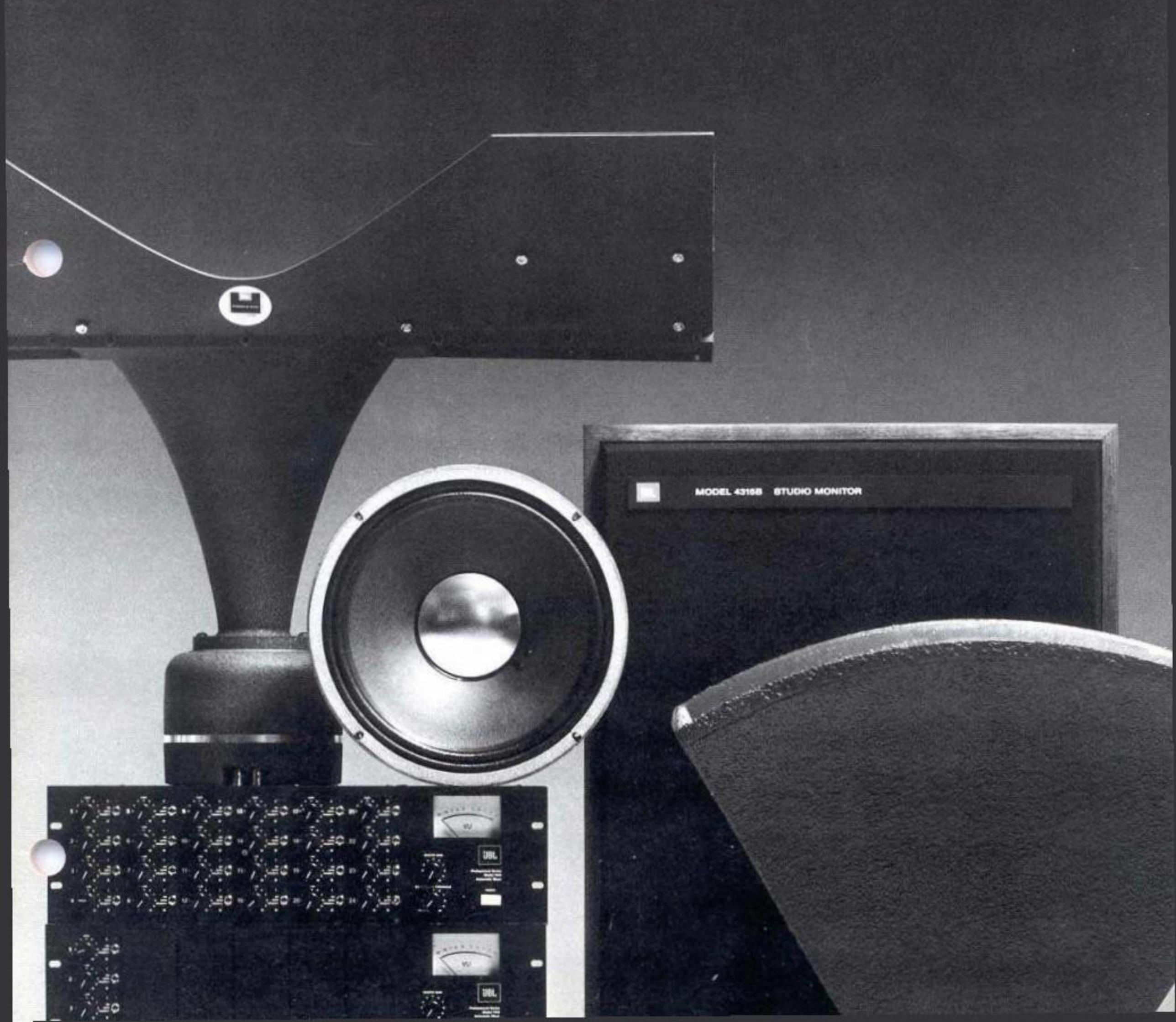
JBL PROFESSIONAL SERIES



JBL

JBL PROFESSIONAL SERIES

This catalog contains JBL's current Professional Series loudspeaker systems, components and electronics. They reflect the very latest developments in acoustic and electronic engineering, and will provide the performance, durability and versatility required of professional installations.

Measurement Specifications

Frequency response and sensitivity are measured on axis in a hemispherical free field environment. Frequency response is quoted as the upper and lower frequencies within which the variation is not greater than the specified limits. Frequency range specifies the upper and lower usable frequency limits of the transducer or system.

Power handling is tested with a sine wave input signal swept within a range of approximately one octave below to one octave above minimum impedance. Constant amplifier voltage is adjusted to provide stated power into rated nominal impedance, and units are required to sustain this performance continuously for one hour without any sign of damage, voice coil discoloration, or change in performance characteristics.

Power handling capacities are described in terms of continuous program power, which is twice continuous sine wave power. Expressed another way, continuous program power is 3 dB greater than continuous sine wave power and is a conservative expression of the transducer's ability to handle normal speech and music program material. Horn and lens distribution patterns indicate the inclusive angle through which output is no more than 6 dB below on-axis response at the selected frequencies. Electronic equipment is also conservatively rated: amplifier outputs are given in watts continuous sine wave at specified impedance with distortion at or below the rated maximum, and distortion figures are referred to full rated output levels. All quoted operational characteristics are based on actual production units, not laboratory prototypes. All active electronic products are designed for operation on 120/240 V AC, 50/60 Hz.


4311B
4315B
4350B
4301B

STUDIO MONITOR LOUDSPEAKER SYSTEMS

4301B Broadcast Monitor, 2-way JBL's smallest monitor is designed primarily for the broadcast control room and edit booth, and has achieved wide acceptance in home studios, remote recording and quality control areas. Smooth, wide range response and low distortion are obtained from 200 mm (8 in) low frequency and 36 mm (1.4 in) high frequency loudspeakers. A high frequency level control is provided on the front baffle. Available in oiled walnut with dark blue grille.

4301BE Broadcast Monitor, 2-way The 4301BE includes a built-in power amplifier of extremely high quality, allowing direct connection to a control board. Because the loudspeaker requires no external amplifier, it is ideal for use wherever space is at a premium. The amplifier has been designed specifically for the 4301B, can be driven to rated output with only 0.5 V input, and is fully protected against overdrive conditions. The 4301BE is otherwise physically and acoustically identical to the 4301B, and is also available in oiled walnut with a dark blue grille.

4301B Components

4311B Control Monitor, 3-way A compact loudspeaker system designed for control rooms and other applications where space is restricted, the 4311B utilizes 300 mm (12 in) low frequency, 130 mm (5 in) midrange and 36 mm (1.4 in) high frequency loudspeakers. Front panel controls, below the grille, permit convenient adjustment of midrange and high frequency levels. Available in textured gray or oiled walnut with black grille.

4315B Compact Studio Monitor, 4-way Exhibiting exceptionally smooth, wide-band reproduction, clarity, superior transient response and controlled dispersion, the 4315B is similar in sound character to the larger studio monitors. It is recommended whenever the high SPL of the larger systems is not required or where space is limited. The system consists of 300 mm (12 in) low frequency, 200 mm (8 in) midrange, 130 mm (5 in) high frequency loudspeakers and an ultra-high frequency transducer. The 4315B can be positioned with the high frequency units at the top or bottom when vertical, or at the left or right when horizontal, to optimize high frequency coverage. Eye bolts can be inserted on the back to suspend the system. It is available in textured gray with black grille, or oiled walnut with dark blue grille.

4350B Studio Monitor, 4-way JBL's largest monitor, the 4350B represents the ultimate in high acoustic output, broad bandwidth, definition and efficiency. Designed for bi-amplification, the system consists of two 380 mm (15 in) low frequency loudspeakers, a 300 mm (12 in) midrange loudspeaker, a high frequency compression driver with horn and acoustic lens, and an ultra-high frequency transducer. The enclosure allows mirror image mounting of high frequency components for optimum source localization. The bottom panel is finished and the base is removable to facilitate inverted suspension by eye bolts anchored to an internal steel support. Available in textured gray with black grilles or oiled walnut with dark blue grilles.

4311B Components

Model	Frequency Response (±3 dB)	Power Capacity (Continuous Sine Wave)	Nominal Impedance	Sensitivity[1] 1 W, 1 m (3.3 ft)	Crossover Frequencies[2]	Enclosure Volume	Exterior Dimensions (Height x Width x Depth)	Net Weight
4301B	45 Hz - 15 kHz	15 W	8 Ω	88 dB SPL	2.5 kHz	30 litres 1 ft³	483 mm x 291 mm x 286 mm 19 in x 11½ in x 11¼ in	12.7 kg 28 lb
4301BE Loudspeaker, Amplified[3]	45 Hz - 15 kHz				2.5 kHz	28 litres 1 ft³	483 mm x 291 mm x 286 mm 19 in x 11½ in x 11¼ in	14 kg 31 lb
4311B	45 Hz - 15 kHz	40 W	8 Ω	91 dB SPL	1.5 kHz 6 kHz	40 litres 1.5 ft³	597 mm x 362 mm x 298 mm 23½ in x 14¼ in x 11¾ in	20 kg 46 lb
4315B	35 Hz - 20 kHz	60 W	8 Ω	89 dB SPL	400 Hz 2 kHz, 8 kHz	90 litres 3.2 ft³	854 mm x 521 mm x 327 mm 33⅝ in x 20½ in x 12⅞ in	47.6 lb 105 lb
4350B	30 Hz - 20 kHz	200 W below 250 Hz 100 W above 250 Hz	4 Ω below 250 Hz 8 Ω above 250 Hz	96 dB SPL	250 Hz 1.1 kHz, 9 kHz	270 litres 9.5 ft³	889 mm x 121 mm x 508 mm 35 in x 47¾ in x 20 in	118 kg 261 lb

1. Sensitivity measured with an input averaged from 500 Hz to 2.5 kHz, with controls set for flattest response.
2. The lowest crossover frequency specified for the 4350B is the recommended crossover frequency for bi-amplification.
3. The 4301BE has a built-in power amplifier with the following specifications: Sensitivity 0.5 V. Power Output 10 W continuous sine wave. THD at rated output 0.05% or less. THD at 1 W 0.02% or less. Signal/Noise Ratio (at rated output) better than 90 dB.


4313B
4333B
4343B
4331B

4313B Control Monitor, 3-way Setting new performance standards for compact monitors, the JBL 4313B delivers smooth, low distortion, wide-band sound reproduction. It is ideal for control rooms, small studios, mixdown facilities, or other similar applications. The system utilizes a 250 mm (10 in) low frequency loudspeaker, 130 mm (5 in) midrange loudspeaker, and 25 mm (1 in) high frequency dome radiator mounted in a vertical array to provide the widest possible dispersion, excellent stereo imaging, and spatial accuracy. The 4313B is available in an oiled walnut finish with dark blue grille.

4313B Components

4331B Studio Monitor, 2-way A refinement of the classic JBL studio monitor, the 4331B utilizes a recently developed 380 mm (15 in) low frequency loudspeaker having extended bass response and greater accuracy, plus a wide range high frequency compression driver with horn/lens assembly. The frequency dividing network can be switched for conventional, passive operation or for bi-amplification. The enclosure contains steel bracing that will accept eye bolts for horizontal or vertical suspension. It is available in textured gray with black grille or oiled walnut with dark blue grille.

4333B Studio Monitor, 3-way An expansion of the two-way system of the 4331B featuring an ultra-high frequency transducer that extends system bandwidth to 20 kHz, ±3 dB. The frequency dividing network is switchable for conventional, passive operation or for bi-amplification. The enclosure design and options are identical to those of the 4331B.

4343B Studio Monitor, 4-way JBL's most sophisticated medium-sized monitor, the 4343B utilizes 380 mm (15 in) low frequency and 250 mm (10 in) midrange loudspeakers, a high frequency compression driver with horn/lens assembly, and an ultra-high frequency transducer. The monitor exhibits exceptional clarity, transient response and low distortion, and is intended for control room and mastering applications. The frequency dividing network can be switched for conventional, passive operation or to allow bi-amplification. Rigidly constructed of 25 mm (1 in) stock, the enclosure has provision for mirror image mounting of midrange and high frequency components. An internal steel brace will accept eye bolts for horizontal or vertical suspension. Textured gray with black grille or oiled walnut with dark blue grille.

4331B Components

Model	Frequency Response (±3 dB)	Power Capacity[1] (Continuous Sine Wave)	Nominal Impedance	Sensitivity[2] 1 W, 1 m (3.3 ft)	Crossover Frequencies[3]	Enclosure Volume	Exterior Dimensions (Height x Width x Depth)	Net Weight
4313B	40 Hz-18 kHz	40 W	8 Ω	89 dB SPL	1 kHz 4 kHz	34 litres 1.2 ft³	597 mm x 362 mm x 252 mm 23½ in x 14¼ in x 9 15/16 in	21 kg 47 lb
4331B	35 Hz-15 kHz	75 W	8 Ω	94 dB SPL	800 Hz	156 litres 5.5 ft³	778 mm x 619 mm x 514 mm 30⅝ in x 24⅜ in x 20⅛ in	58.5 kg 129 lb
4333B	35 Hz-20 kHz	75 W	8 Ω	94 dB SPL	800 Hz 8.5 kHz	156 litres 5.5 ft³	778 mm x 619 mm x 514 mm 30⅝ in x 24⅜ in x 20⅛ in	60 kg 133 lb
4343B	35 Hz-20 kHz	75 W	8 Ω	94 dB SPL	300 Hz 1.25 kHz, 9.5 kHz	156 litres 5.5 ft³	1051 mm x 635 mm x 435 mm 41⅜ in x 25 in x 17⅛ in	83.9 kg 185 lb

1. When bi-amplified, the 4331B and 4333B are rated at 75 W below 800 Hz and 30 W above 800 Hz. The 4343B is rated at 75 W below 300 Hz and 75 W above 300 Hz.

2. Sensitivity measured with an input averaged from 500 Hz to 2.5 kHz, with controls set for flattest response.

3. The lowest crossover frequency specified refers to operational characteristics with the network set for conventional passive operation, and is also the recommended crossover frequency for bi-amplification.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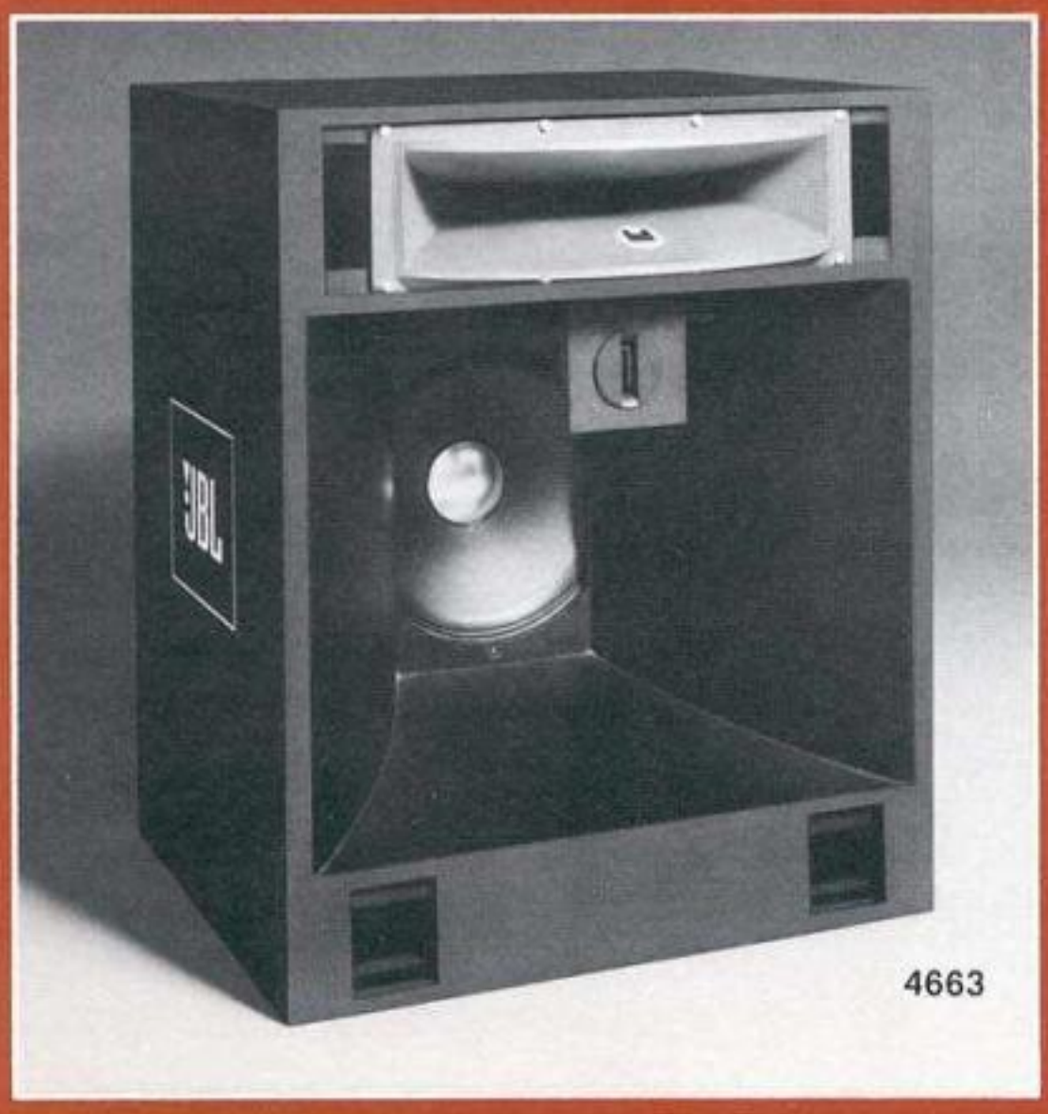
4602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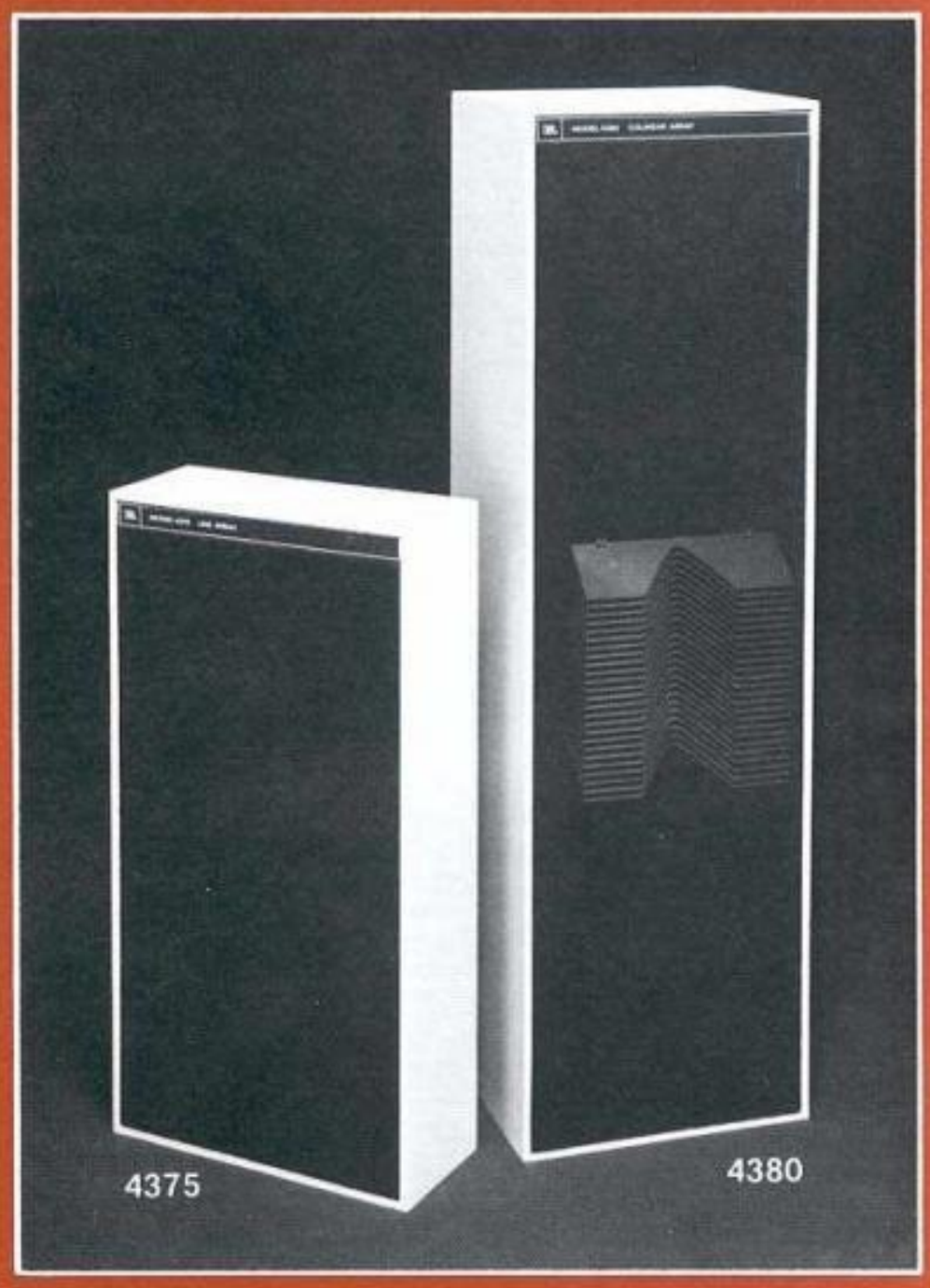

4375
4380

CABARET SERIES

4602 Monitor Smooth, wide frequency response (50 Hz-15 kHz), uncolored reproduction and high directivity make the 4602 an ideal stage monitor, acoustic instrument system or small general purpose vocal reinforcement system. The system utilizes an E120 300 mm (12 in) loudspeaker, a 2402 high frequency ring radiator, and a specially designed cross-over network.

4621 Lead Guitar The matchless JBL E130 380 mm (15 in) extended range loudspeaker is mounted in an enclosure designed specifically to reproduce electric guitar.

4622 Lead Guitar The unmistakable JBL sound quality will satisfy even the most critical musician. Two E120 300 mm (12 in) loudspeakers mounted in an enclosure engineered specifically for lead guitar work do the job the way it was meant to be done – with high accuracy and the ability to handle up to 300 watts continuous sine wave power.

4623 Acoustic Guitar/Vocal Reinforcement Adding a 2402 high frequency ring radiator and a specially designed crossover network to the 4621 creates a system that is ideal for acoustic guitar or vocal reinforcement applications.

4625 Bass Guitar Pure, punchy bass at any sound pressure level: the product of a 380 mm (15 in) E140 low frequency loudspeaker performing in a carefully designed enclosure. The combination of high efficiency and high power handling capacity allows the system to handle up to 200 watts continuous sine wave power.

4627 Keyboard Specially designed for organ and piano, the 4627 is characterized by extremely low distortion and a wide frequency range (40 Hz-12 kHz). An E145 380 mm (15 in) loudspeaker, a 2901A high frequency power pack, and a specially designed crossover network provide high accuracy and outstanding definition.

4680 Line Array JBL's remarkable 4682 line array housed in a Cabaret Series enclosure. Four E110 250 mm (10 in) loudspeakers and a 2902 high frequency power pack (two 2402s and a crossover network) deliver very natural sound – clean, crisp, and clear – over a wide frequency range of 55 Hz to 15 kHz.

Model	Frequency Range	Power Capacity (Continuous Sine Wave)	Power Capacity (Continuous Program)	Nominal Impedance	Sensitivity 1 W, 1 m (3.3 ft)	Crossover Frequency	Enclosure Volume	Exterior Dimensions (Height x Width x Depth)	Net Weight
4602	50 Hz-15 kHz	150 W	300 W	8 Ω	103 dB SPL	3 kHz	42 litres 1.5 ft³	508 mm x 406 mm x 374 mm 20 in x 16 in x 14¹³⁄₁₆ in	19.1 kg 42 lb
4621	50 Hz-6 kHz	150 W	300 W	8 Ω	105 dB SPL	N/A	127 litres 4.5 ft³	767 mm x 512 mm x 478 mm 30³⁄₁₆ in x 20³⁄₁₆ in x 18¹³⁄₁₆ in	18.3 kg 40¼ lb
4622	50 Hz-6 kHz	300 W	600 W	4 Ω	106 dB SPL	N/A	127 litres 4.5 ft³	767 mm x 512 mm x 478 mm 30³⁄₁₆ in x 20³⁄₁₆ in x 18³⁄₁₆ in	31.2 kg 68¾ lb
4623	50 Hz-15 kHz	150 W	300 W	8 Ω	105 dB SPL	3 kHz	127 litres 4.5 ft³	767 mm x 512 mm x 478 mm 30³⁄₁₆ in x 20³⁄₁₆ in x 18¹³⁄₁₆ in	20.8 kg 45¾ lb
4625	40 Hz-2.5 kHz	200 W	400 W	8 Ω	100 dB SPL	N/A	127 litres 4.5 ft³	767 mm x 512 mm x 478 mm 30³⁄₁₆ in x 20³⁄₁₆ in x 18¹³⁄₁₆ in	18.3 kg 40¼ lb
4627	40 Hz-12 kHz	150 W	300 W	8 Ω	98 dB SPL	1.5 kHz	127 litres 4.5 ft³	767 mm x 512 mm x 478 mm 30³⁄₁₆ in x 20³⁄₁₆ in x 18¹³⁄₁₆ in	28 kg 61½ lb
4680	55 Hz-15 kHz	300 W	600 W	8 Ω	105 dB SPL	3 kHz	142 litres 5 ft³	1322 mm x 402 mm x 372 mm 52¹⁄₁₆ in x 16¹³⁄₁₆ in x 14¾ in	43.8 kg 96 lb

SPECIAL PURPOSE LOUDSPEAKER SYSTEMS

4375 Line Array An efficient, high powered speech range public address system utilizing four rugged 130 mm (5 in) drivers, the 4375 is ideal for meeting rooms, churches and auditoriums requiring a high degree of intelligibility and wide sound dispersion. It is available in textured gray with charcoal black fabric grille.

4662 and 4663 Sound Reinforcement Loudspeaker Systems Compact, powerful reinforcement systems, the 4662 and 4663 offer high efficiency, vivid, natural sound (even at very high levels), and a controlled dispersion pattern. Ideal for indoor or outdoor reinforcement applications. The 4662 two-way system delivers outstanding performance from 40 Hz to 9 kHz; the 4663 three-way system extends the top end to beyond 20 kHz.

4380 Colinear Array A six-element array for larger meeting halls, churches or auditoriums, the 4380 offers extended bandwidth for reproduction of moderate intensity musical accompaniment. The two 130 mm (5 in) and four 200 mm (8 in) drivers are arranged in colinear configuration with overlapping wavefronts; a slant-plate acoustic lens over the 130 mm drivers provides additional high frequency dispersion. Available in textured gray with charcoal black fabric grille.

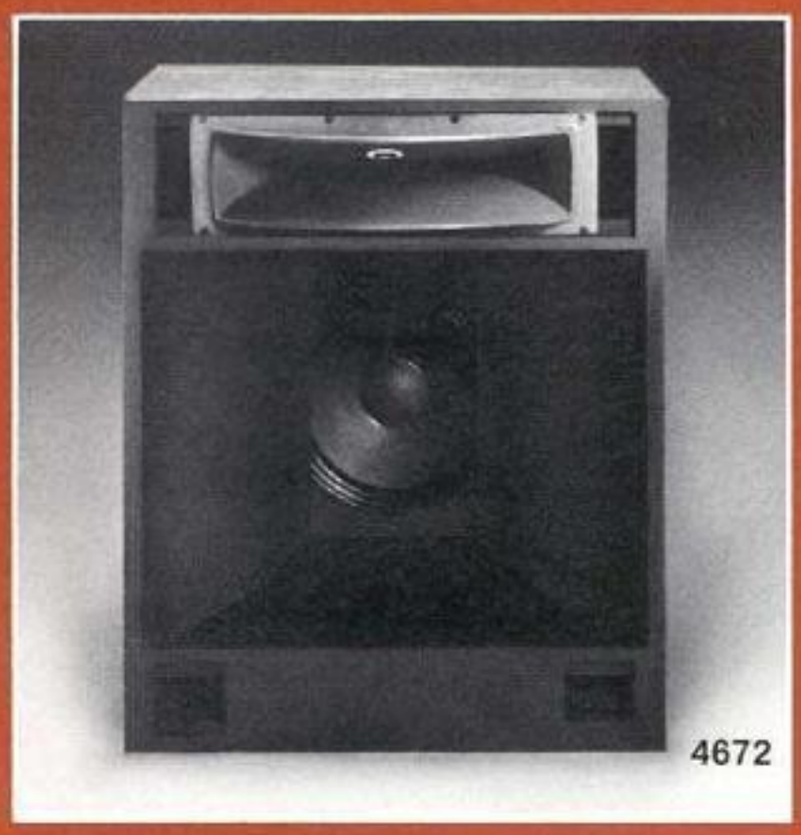
Model	Frequency Range	Dispersion (Horizontal x Vertical)	Nominal Impedance	Power Capacity (Continuous Program)	Sensitivity[1] 1 W, 1 m (3.3 ft)	Components	Crossover Frequency	Enclosure Volume	Exterior Dimensions[2] (Height x Width x Depth)	Net Weight
4375	150 Hz-15 kHz	120° x 30°	8 Ω	200 W	100 dB SPL	(4) 2105H, 130 mm (5 in)		35 litres 1.2 ft³	762 mm x 400 mm x 165 mm 30 in x 15¾ in x 5½ in	16 kg 35 lb
4380	55 Hz-15 kHz	90° x 20°	8 Ω	200 W	99 dB SPL	(4) 2110H, 200 mm (8 in) (2) 2105H, 130 mm (5 in)	1.5 kHz	95 litres 3.3 ft³	1213 mm x 362 mm x 289 mm 47¾ in x 14¼ in x 11⅜ in	34.4 kg 75½ lb

1. Sensitivity measured with an input averaged from 500 Hz to 2.5 kHz.

2. The acoustic lens attached to the grille of the 4380 extends an additional 63 mm (2½ in).

Model	Frequency Range	Power Capacity (Continuous Sine Wave)	Nominal Impedance	Sensitivity[1] 1 W, 1 m (3.3 ft)	Crossover Frequencies	Enclosure Volume	Exterior Dimensions (Height x Width x Depth)	Net Weight Assembled Systems
4662	45 Hz-9 kHz	150 W	8 Ω	105 dB SPL	800 Hz	422 litres 14.9 ft³	914 mm x 762 mm x 606 mm 36 in x 30 in x 23¾ in	63 kg 138 lb
4663	45 Hz-21 kHz	150 W	8 Ω	105 dB SPL	800 Hz, 8 kHz	422 litres 14.9 ft³	914 mm x 762 mm x 606 mm 36 in x 30 in x 23¾ in	67 kg 147 lb

1. Sensitivity measured with an input averaged from 500 Hz to 2.5 kHz.



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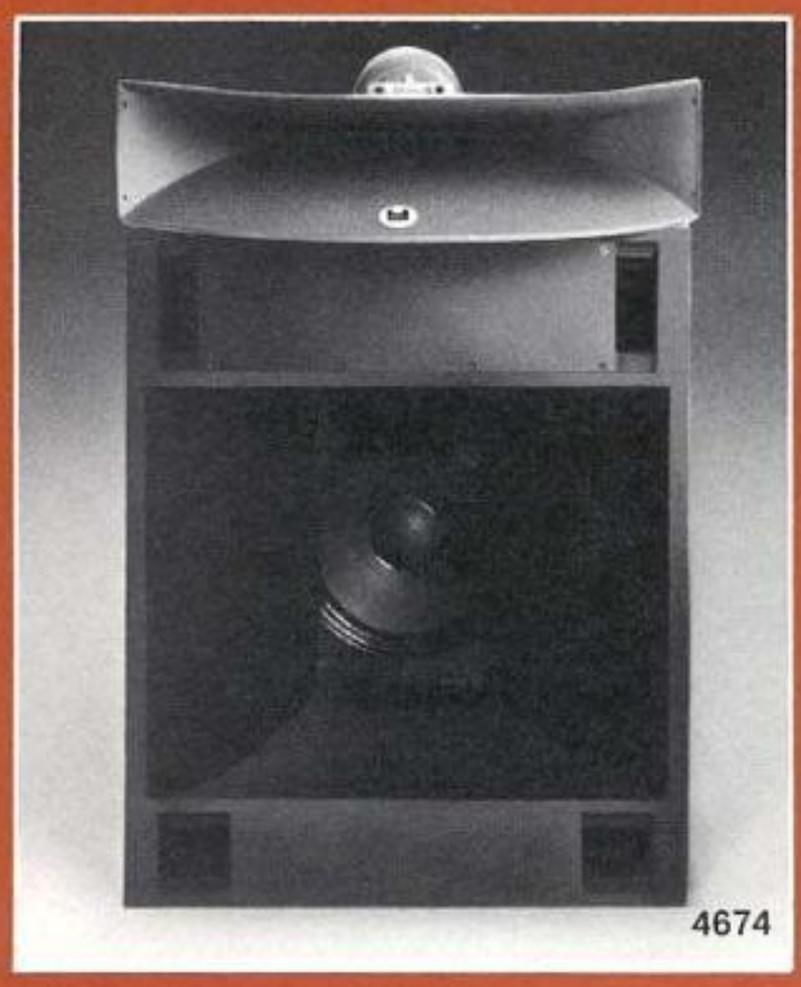

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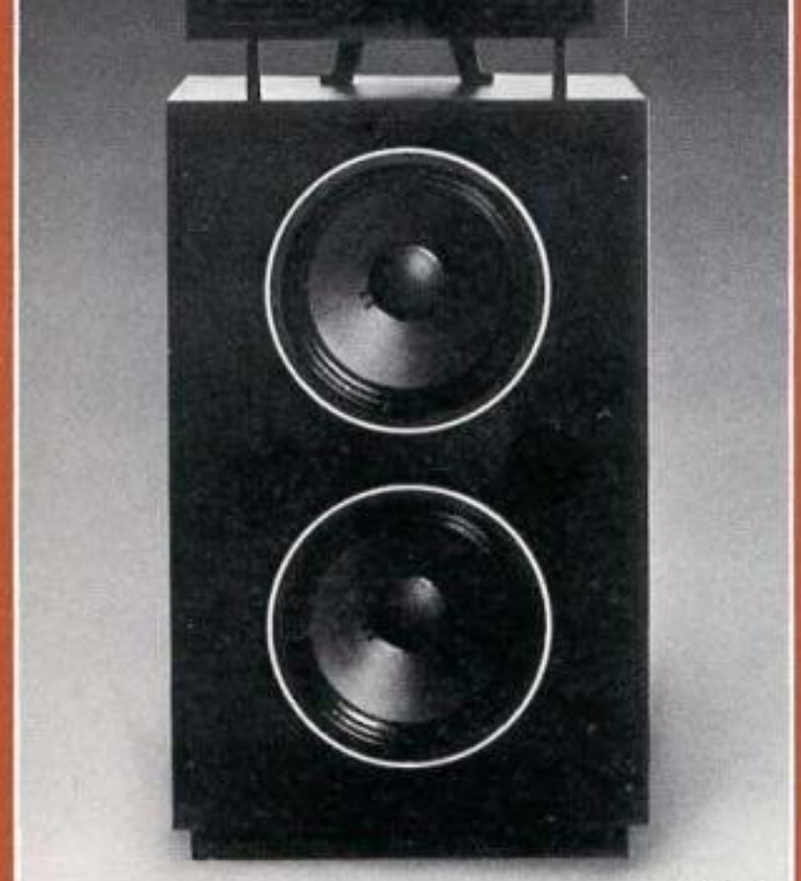

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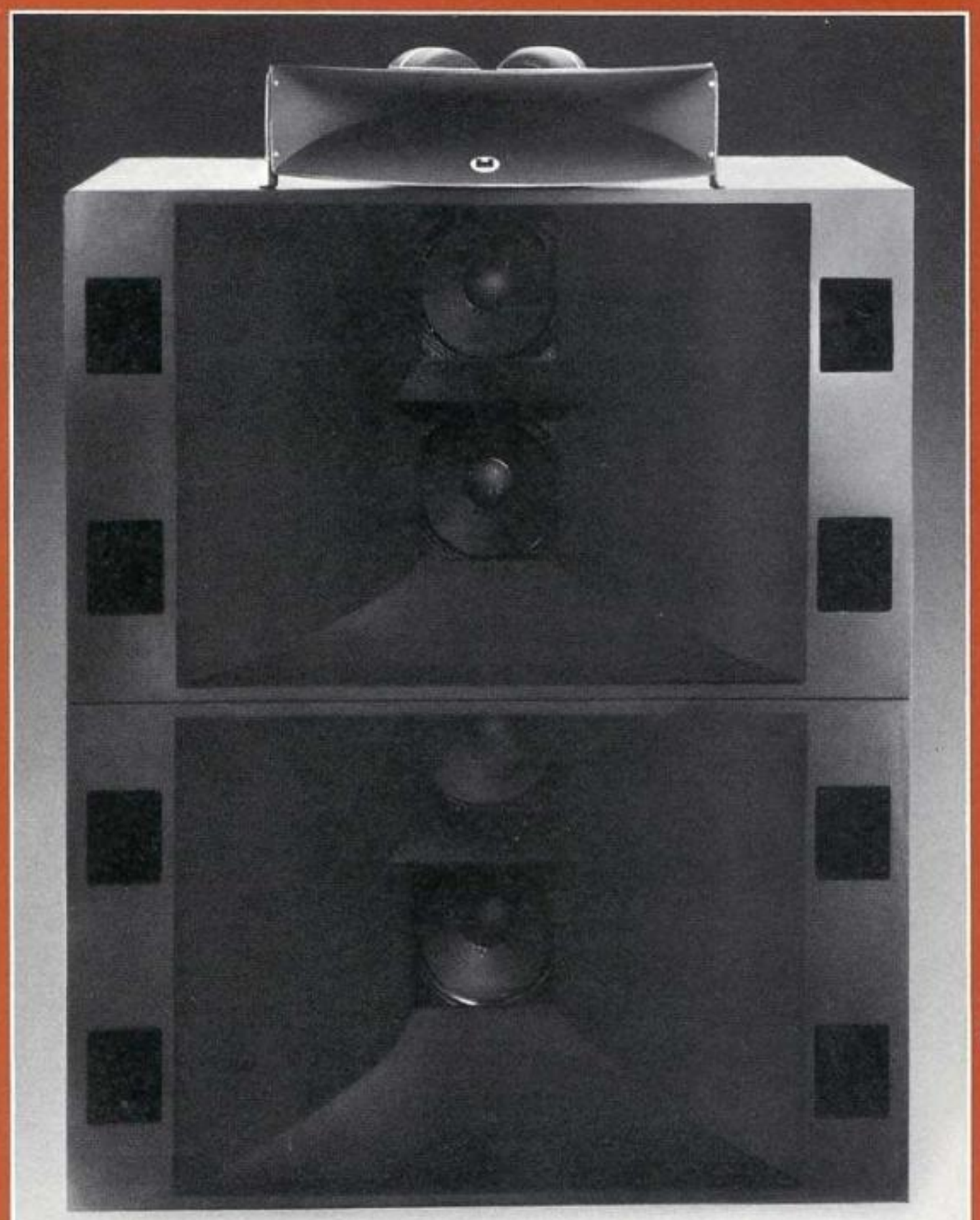


4676-2

4676-1

SOUND REINFORCEMENT/THEATER SYSTEMS

4672 Perfectly suited for use in small halls, the 4672 is a compact, 2-way loudspeaker system that combines high efficiency, wide dispersion, and natural, uncolored sound quality. System components include a specially designed 380 mm (15 in) low frequency loudspeaker, high frequency compression driver and radial horn. All components are housed in an optimally tuned, horn-loaded enclosure.

4674 Designed for medium size environments, the 4674 delivers smooth, accurate, full range sound reproduction. The low frequency components are identical to those in the 4672. They are matched, however, with a larger, externally mounted radial horn and compression driver. The 4674 is recommended for those applications requiring high acoustic output and moderate system size.

4676-1 The 4676-1 is an extremely efficient, 2-way loudspeaker system that is engineered to provide high level acoustic output, extended frequency response, and low distortion. The system utilizes two 380 mm (15 in) low frequency loudspeakers housed in a long-throw horn enclosure for bass reproduction. A single compression driver and radial horn are used for high frequencies. The 4676-1 is ideal for use in moderate to large rooms.

4676-2 JBL's most massive standard sound system, the 4676-2 is capable of producing extremely high sound pressure levels in even the largest rooms. The system consists of two horn enclosures, four 380 mm (15 in) low frequency loudspeakers, two high frequency compression drivers, and a single controlled-dispersion radial horn. This unique array of components gives the 4676-2 excellent power capacity, efficiency, and dynamic range.

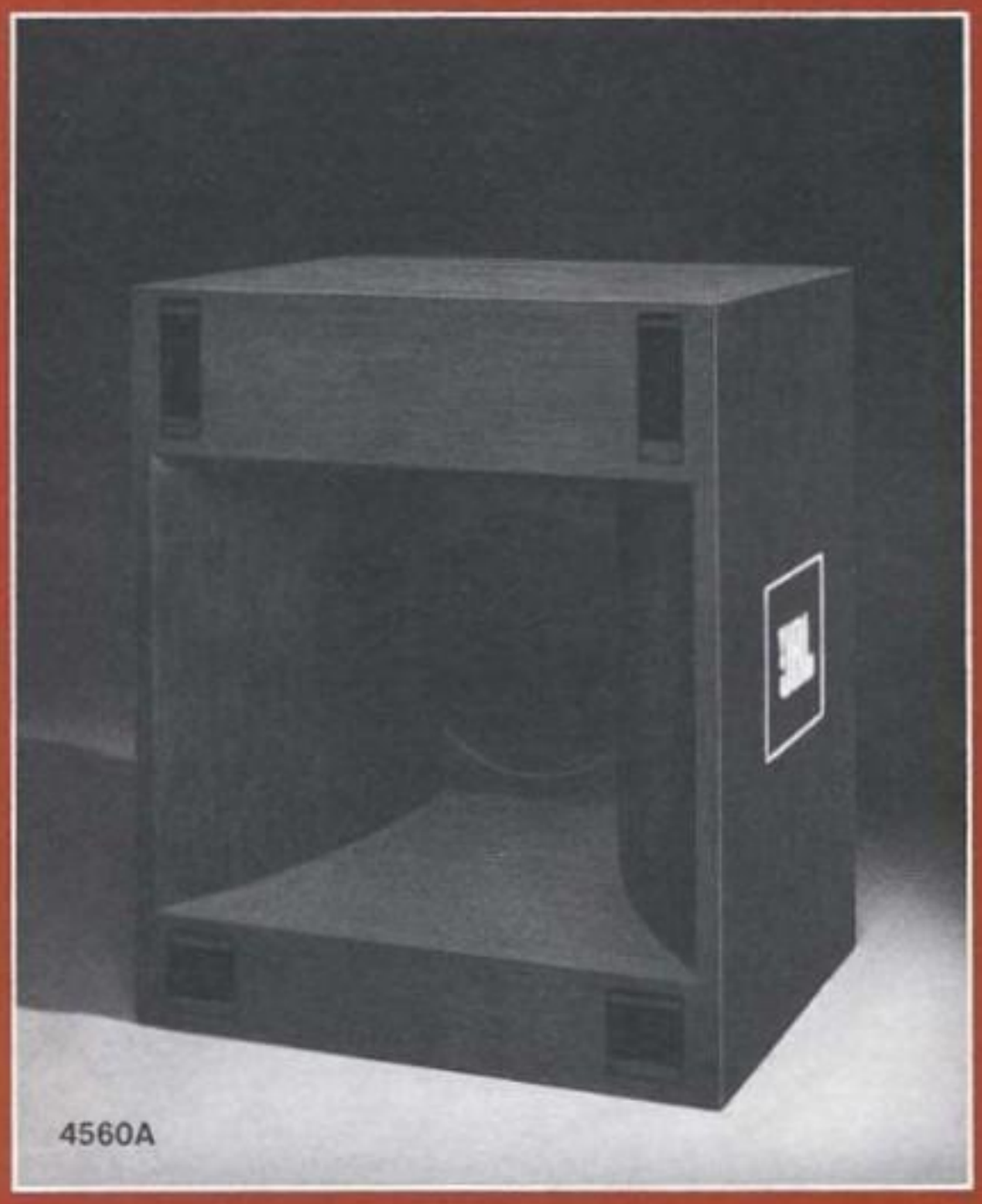
4670 The 4670 offers outstanding performance in a very compact package. The specially designed slim profile enclosure is perfectly matched with two 380 mm (15 in) low frequency loudspeakers and an externally mounted compression driver, horn, and acoustic lens. The result is a system that delivers wide bandwidth, high efficiency, wide horizontal dispersion, and excellent dynamic range.

Specifications

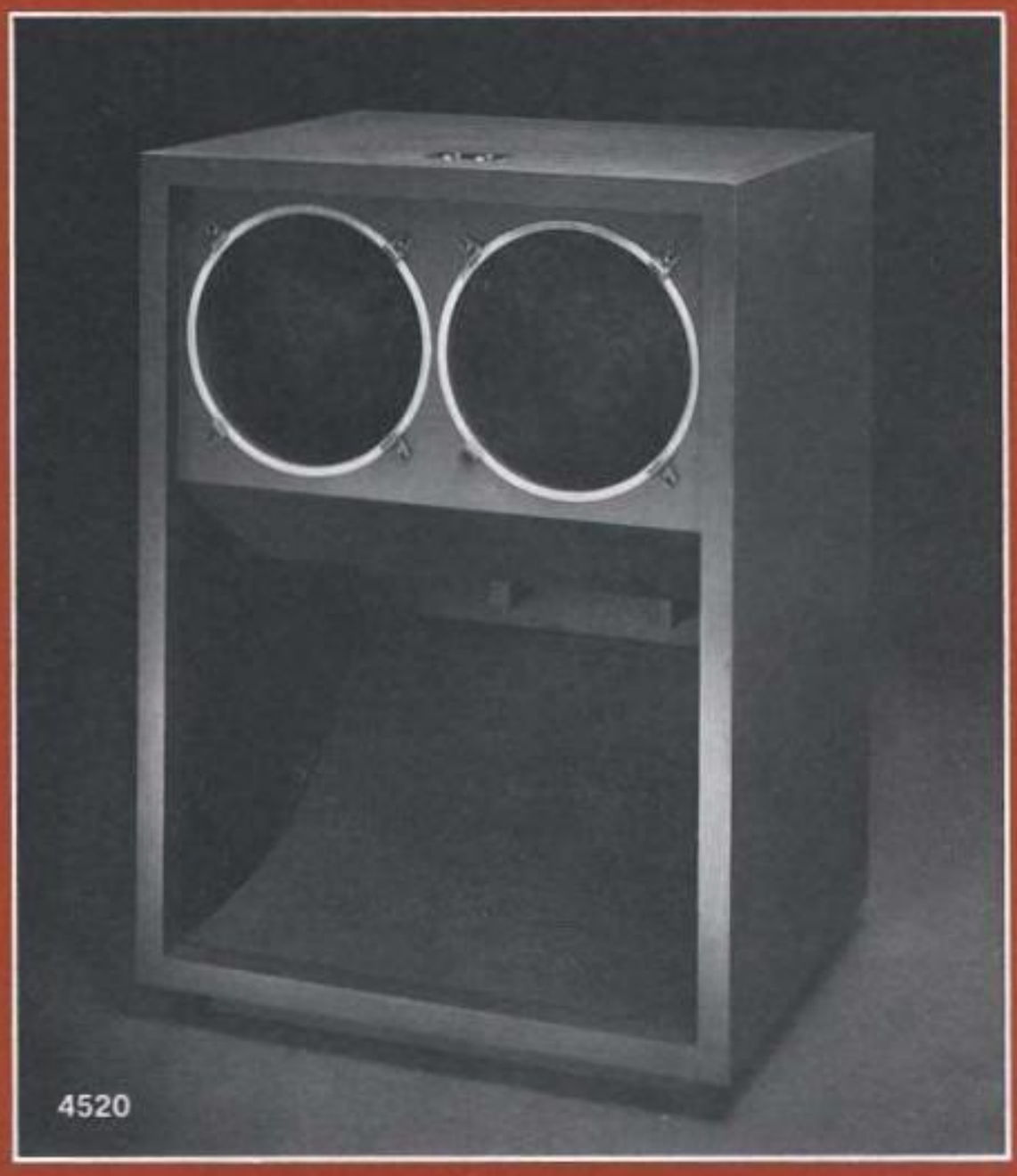
Model	Frequency Range	Power Capacity (Continuous Sine Wave)	Power Capacity (Continuous Program)	Sensitivity 1 W, 1 m (3.3 ft)	Horizontal Beamwidth	Nominal Impedance	Exterior Dimensions (Height x Width x Depth)	Net Weight
4672	45 Hz - 15 kHz	150 W	300 W	101 dB SPL	90°	8 Ω	914 mm x 762 mm x 606 mm 36 in x 30 in x 23⅞ in	65.1 kg 143½ lb
4674	45 Hz - 18 kHz	150 W	300 W	101 dB SPL	90°	8 Ω	1117 mm x 803 mm x 742 mm 44 in x 31⅝ in x 29¼ in	78.5 kg 173 lb
4676-1	40 Hz - 18 kHz	300 W	600 W	104 dB SPL	90°	8 Ω	1118 mm x 1524 mm x 825 mm 44 in x 60 in x 32½ in	141 kg 311 lb
4676-2	40 Hz - 18 kHz	300 W	600 W	107 dB SPL	90°	8 Ω	2032 mm x 1524 mm x 825 mm 80 in x 60 in x 32½ in	269.2 kg 593½ lb
4670	35 Hz - 18 kHz	300 W	600 W	101 dB SPL	100°	8 Ω	1295 mm x 667 mm x 559 mm 50¾ in x 26½ in x 22 in	94.3 kg 208 lb

Components

Model	Low Frequency Drivers	High Frequency Drivers	High Frequency Horn	Horn Throat	Frequency Dividing Network	Enclosure
4672	E145-8 (1)	2410 (1)	2345	N/A	3110	4560A
4674	E145-8 (1)	2441 (1)	2350	2328	3115	4560A
4676-1	E145-16 (2)	2441 (1)	2350	2328	3152A	4550A
4676-2	E-145-8 (4)	2441 (2)	2350	2329	3152A 9375	4550A (2)
4670	E145-16 (2)	2441 (1)	2309 & 2310	N/A	3152A	4508



4560A



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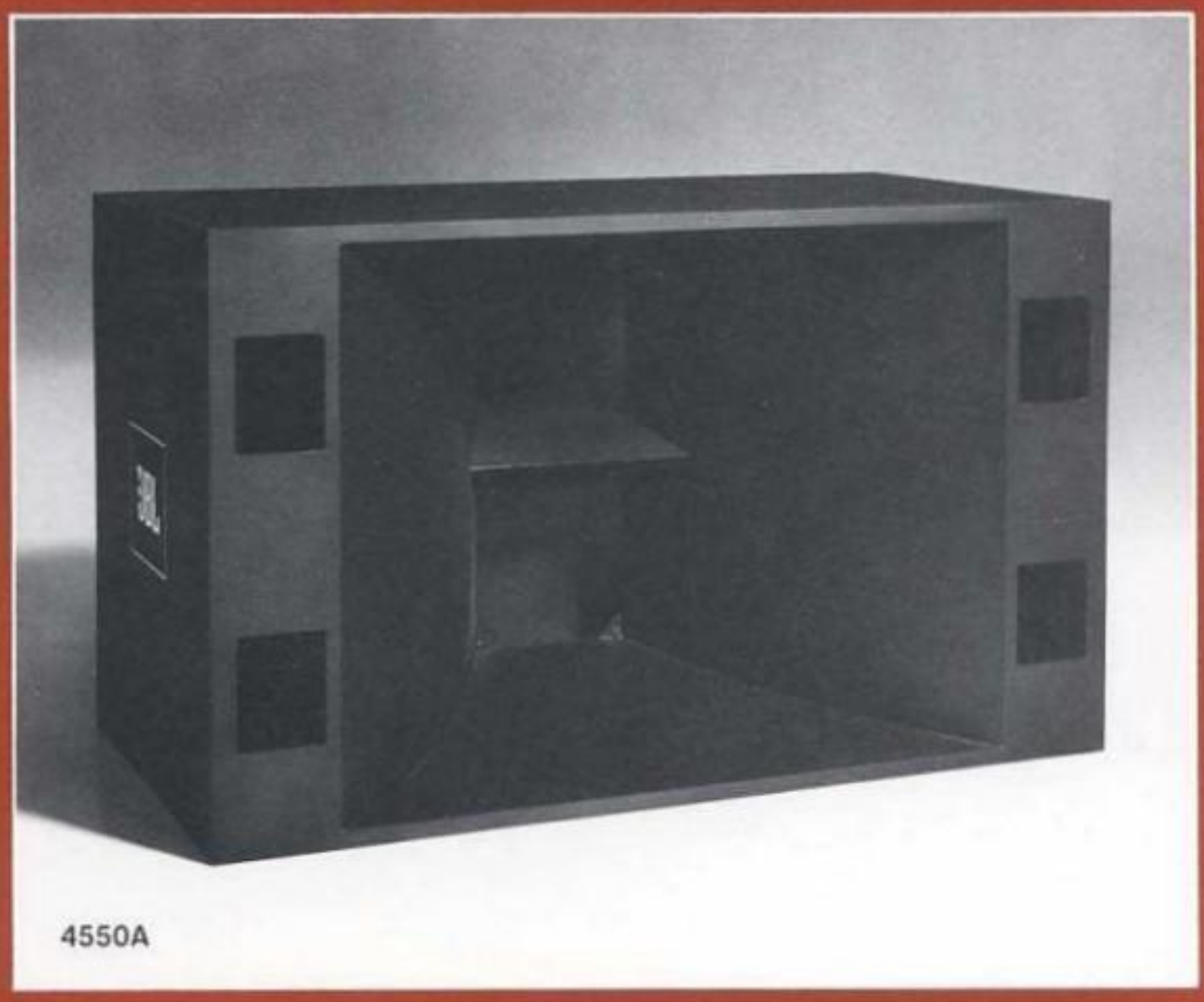


4550A

LOW FREQUENCY ENCLOSURES

JBL low frequency enclosures are ideal for theater and high power reinforcement applications. The flat panels are constructed of dense stock, with double sheets of plywood used for curved surfaces. The baffle panels accept 380 mm (15 in) drivers and are fitted with ¼-20 threaded T-nuts to facilitate loudspeaker mounting; push-button input terminals are provided and front mounting units are supplied with MA15 loudspeaker mounting kits. The finish is utility black.

4508 Bass Reflex Dual Driver The 4508 is a slim profile, vented enclosure that offers outstanding low frequency reproductcn in a very compact package. Frequency response is uniform to 45 Hz. Horizontal dispersion at 800 Hz is 140°

4520 Rear Loading Dual Driver A short throw, 4 m (13 ft) folded horn, the 4520 provides maximum loading to 42 Hz for applications which require high level sound projection up to 25 m (80 ft). It exhibits uniform response to 50 Hz and is usable to 30 Hz. Above 150 Hz, the drivers operate as direct radiators.

4530 Rear Loading Single Driver The 4530 is a short throw (to 25 m, 80 ft) 2 m (7 ft) folded horn with maximum loading to 50 Hz. It delivers uniform response to 60 Hz and is usable to 40 Hz. The driver acts as a direct radiator above 150 Hz.

4550A Front Loading Dual Driver The 4550A is a long throw directional horn designed for use below 800 Hz. Its combination front loaded horn and bass reflex enclosure extends usable frequency response down to 40 Hz. The enclosure's dispersion pattern at 800 Hz is 75° horizontal and 30° vertical.

4560A Front Loading Single Driver A long throw directional horn for use below 800 Hz, with usable response down to 45 Hz, the 4560A adds 6 dB to driver sensitivity above 200 Hz. Its dispersion pattern is 90° horizontal and 60° vertical at 800 Hz. Provision is made for installation of a 2345 horn with a 2410 or 2461 driver into the enclosure, along with the required dividing network.

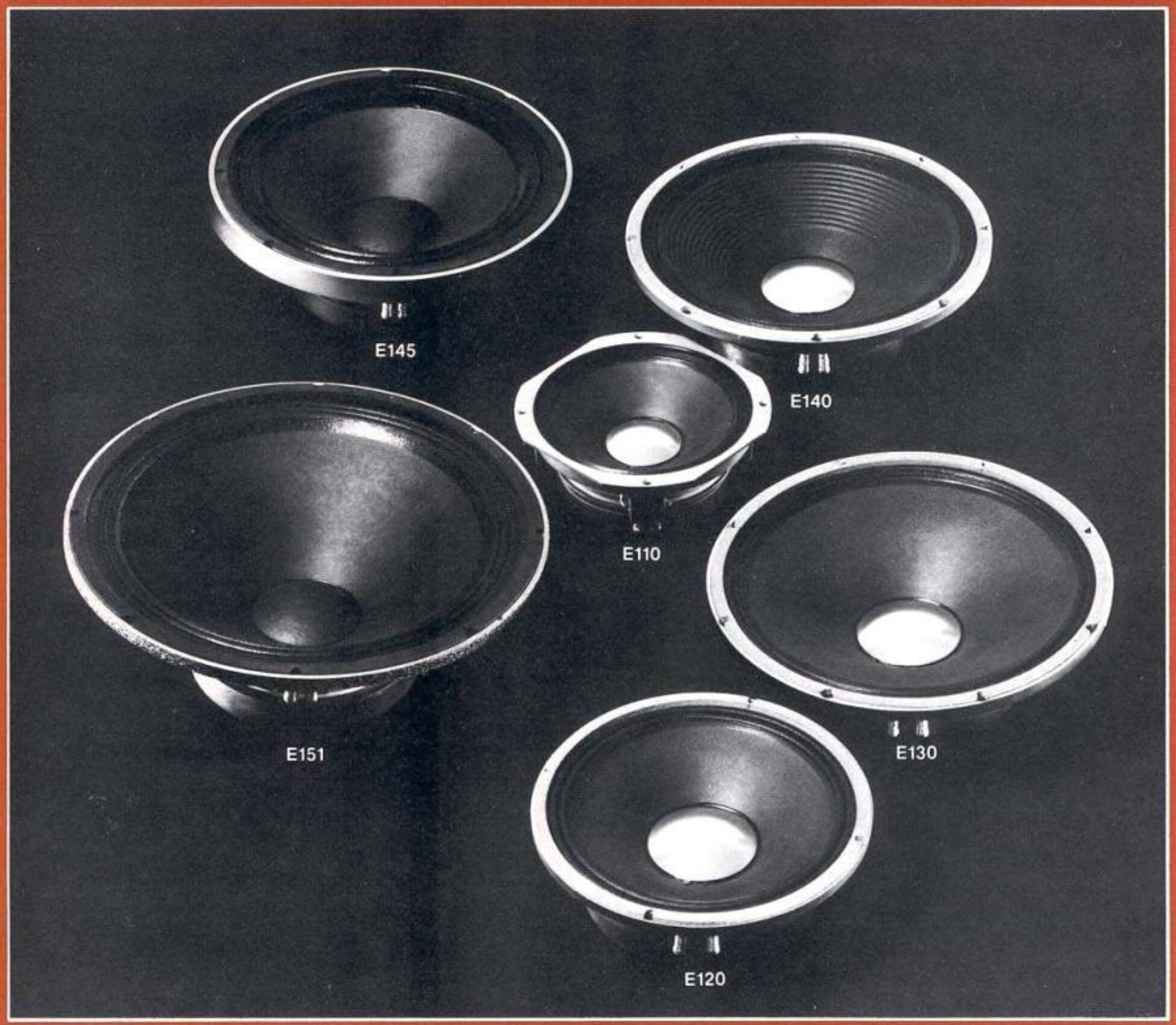
Model	Recommended Driver	Lowest Usable Frequency	Exterior Dimensions (Height x Width x Depth)	Net Weight (Without Drivers)
4508	2220, 2205 E140, E145	35 Hz	1060 mm x 667 mm x 464 mm 41¾ in x 26⅛ in x 18¼ in	49 kg 108.5 lb
4520	2205, E140	30 Hz	1276 mm x 908 mm x 756 mm 50¼ in x 35¾ in x 29¾ in	98 kg 215 lb
4530	2205, E140	40 Hz	1213 mm x 603 mm x 603 mm 47¾ in x 23¾ in x 23¾ in	54 kg 120 lb
4550A	2220, 2205 E140, E145	40 Hz	914 mm x 1524 mm x 825 mm 36 in x 60 in x 32½ in	88 kg 195 lb
4560A	2220, 2205 E140, E145	45 Hz	914 mm x 762 mm x 606 mm 36 in x 30 in x 23¾ in	41 kg 91 lb

MULTIPURPOSE ENCLOSURES

JBL multipurpose enclosures are designed to allow convenient construction of custom sound systems. Each enclosure is manufactured from rugged 19 mm (¾ in) compressed wood and features hand-fitted, heat-cured joints. Enclosure veneers are of furniture quality black walnut and have a hand-rubbed oiled finish. The enclosures are available in 85, 140, and 225 litre sizes (3, 5, and 8 cubic feet).

Recommended Components	Low Frequency	High Frequency	Ultra-High Frequency
EN3 (85 litre)	2202 or 2203[1]	2307, 2311, or 2312 horns with 2308 lens	2402, 2405, or 2403
EN5 (140 litre)	2205, 2220, E130 or E140[2] 2231[3]	2307, 2311, or 2312 horns with 2308 lens	2402, 2405, or 2403
EN8 (225 litre)	2231[4] (Subwoofer)	N/A	N/A

1. Use 4" duct in port.
2. Use 2" duct – cover 4" duct.
3. Use 4" duct – cover 2" duct.
4. Mount 4" duct in both holes.


E145
E140
E151
E110
E130
E120

SOUND REINFORCEMENT/ MUSICAL INSTRUMENT LOUDSPEAKERS

JBL E Series loudspeakers are rugged, precision transducers designed for use in musical instrument amplification systems, sound reinforcement systems, custom line arrays, and a variety of general applications. They exhibit deep, solid bass; crisp, clear midrange; and brilliant high frequency performance. New materials and design techniques allow the E Series to outperform earlier JBL loudspeakers which, in their time, were considered to be the most powerful and reliable available.

E Series loudspeakers feature the sound quality and high efficiency that have become JBL hallmarks. When combined with improved power capacity to meet the demands of today's audio professional, the result can only be characterized by the initials JBL.

HIGH FREQUENCY POWER PACKS

2901A Musical Instrument Designed to augment musical instrument loudspeakers or PA columns, the 2901A increases treble response by two full octaves, giving voice and amplified musical instruments exceptional clarity and definition. Its acoustic output will match even the most efficient musical instrument loudspeaker. The 2901A consists of a 2461 heavy duty compression driver with a perforated plate horn/lens assembly that provides 90° conical dispersion for short and medium throw applications. The dividing network is equipped with a continuously variable control that allows matching output level to the bass loudspeaker or column. The 2901A can be connected in parallel with systems rated up to 300 W continuous sine wave at 4 Ω, 8 Ω, or 16 Ω. Crossover frequency is 1.5 kHz, the driver/horn/lens assembly is 146 mm (5¾ in) at its maximum diameter and its total length is 292 mm (11½ in). Net weight of the 2901A is 6.8 kg (15 lb).

2902 Reinforcement The 2902 is included in the 4680 line array. Operating through a range of more than two octaves, the 2902 extends system response to 15 kHz. With the 2902, voice and acoustic instruments sound exceptionally realistic: their harmonics are re-created precisely and with sharp definition. This power pack consists of a pair of 2402 ring radiators and a 3 kHz dividing network having the required 18 dB per octave filter slope for driver protection, and a continuously variable level control accessible through the grille of a 4680. The 2902 can be connected in parallel with systems rated up to 300 W continuous sine wave at 4 Ω, 8 Ω, or 16 Ω. Net weight of the 2902 is 4.1 kg (9 lb).


2902


2901A

Specifications

Model	Primary Application	Nominal Diameter	Nominal Impedance	Power Capacity: Continuous Program	Power Capacity: Continuous Sine Wave[1]	Sensitivity[2] 1 W, 1 m (3.3 ft)	Frequency Range	Voice Coil Diameter	Voice Coil Material	Magnetic Assembly Weight	Flux Density	Baffle Cutout Diameter: Front Mount	Baffle Cutout Diameter: Rear Mount	Depth	Net Weight
E110	Extended range sound reinforcement or lead or rhythm guitar, organ, piano, voice, column	250 mm 10 in	8 Ω or 16 Ω	150 W	75 W	98 dB SPL	60-8000 Hz	76 mm 3 in	Aluminum	4.7 kg 10¾ lb	1.02 T (10,200 gauss)	228 mm 9 in	222 mm 8¾ in	105 mm 4⅛ in	5.4 kg 11⅞ lb
E120	(same as E110)	300 mm 12 in	8 Ω or 16 Ω	300 W	150 W	103 dB SPL	50-6000 Hz	102 mm 4 in	Aluminum	8.5 kg 18¾ lb	1.35 T (13,500 gauss)	281 mm 11⅛ in	281 mm 11⅛ in	115 mm 4½ in	9.5 kg 20 lb
E130	(same as E110)	380 mm 15 in	4 Ω, 8 Ω or 16 Ω	300 W	150 W	105 dB SPL	50-6000 Hz	102 mm 4 in	Aluminum	8.5 kg 18¾ lb	1.35 T (13,500 gauss)	355 mm 13¹⁵⁄₁₆ in	343 mm 13½ in	137 mm 5½ in	10.1 kg 22¼ lb
E140	Low frequency sound reinforcement or electric bass, organ	380 mm 15 in	8 Ω or 16 Ω	400 W	200 W	100 dB SPL	40-2500 Hz	102 mm 4 in	Copper	8.5 kg 18¾ lb	1.35 T (13,500 gauss)	355 mm 13¹⁵⁄₁₆ in	343 mm 13½ in	137 mm 5½ in	10.1 kg 22¼ in
E145	(same as E140)	380 mm 15 in	8 Ω or 16 Ω	300 W	150 W	98 dB SPL	40-2500 Hz	102 mm 4 in	Copper	10.3 kg 22¾ lb	0.95 T (9,500 gauss)	355 mm 13¹⁵⁄₁₆ in	343 mm 13½ in	160 mm 6¼ in	13.0 kg 28½ lb
E151	(same as E140)	460 mm 18 in	8 Ω	400 W	200 W	99 dB SPL	35-2000 Hz	102 mm 4 in	Copper	8.6 kg 19 lb	1.15 T (11,500 gauss)	427 mm 16¹³⁄₁₆ in	422 mm 16⅝ in	184 mm 7¼ in	11.5 kg 25¼ lb

1. The continuous sine wave rating of power is the most stringent method currently used in the audio industry. It should be noted that many manufacturers use the term 'watts rms' as a direct equivalent to the more meaningful 'watts continuous sine wave'.

2. Swept from 500 to 2500 Hz, within 1 dB, measured at 1 m (3.3 ft) with a 1 W input.


2115
2110
2105

2231
2220
2205
2203
2202

SPECIAL DUTY LOUDSPEAKERS

JBL Professional Series special duty loudspeakers are designed for use in custom line arrays, distributed source installations, and other similar sound systems. They are engineered to provide the sound quality and reliability needed to meet the most demanding audio applications.

2105 130 mm (5 in) Speech Range A powerful midrange loudspeaker providing high acoustic output, smooth response, and wide dispersion. Well suited for in-line arrays and ceiling installations. The 2105 is also useful as a midrange driver in medium efficiency monitor systems.

2110 200 mm (8 in) Extended Range The JBL 2110 is an extended range loudspeaker incorporating a precisely machined, highly efficient magnetic assembly; large, edge-wound aluminum voice coil; and shallow curvilinear cone to ensure optimum performance.

2115 200 mm (8 in) Full Range Natural wide range performance with peak free response and freedom from distortion through more than eight octaves. The 2115 can be used in distributed systems as a single unit monitor or in column array for moderate level, high quality reinforcement.

LOW FREQUENCY LOUDSPEAKERS

When housed in properly constructed enclosures, JBL low frequency loudspeakers exhibit exceptional efficiency and transient response, as well as the ability to handle sustained signals at high power levels without danger of mechanical damage or excessive distortion. To achieve these characteristics, each JBL low frequency loudspeaker is carefully manufactured to exacting quality standards.

Each JBL low frequency loudspeaker has a 100 mm (4 in) edgewound copper voice coil, individually wound. The voice coil, cone and spider are assembled with a heat-resistant, aircraft-grade epoxy—specially formulated for JBL—resulting in an exceptionally strong bond and greater structural integrity than is possible with other commonly used adhesives. The new Symmetrical Field Geometry magnetic structure greatly reduces speaker distortion while increasing power capacity and efficiency.

A rigid cast frame maintains the precise mechanical alignment and will not warp or bend under shipping and mounting stress.

Each JBL low frequency loudspeaker is designed for a specific application, and will deliver exceptional performance and long life when used as intended.

Model	Nominal Diameter	Nominal Impedance	Power Capacity (Continuous Program)	Sensitivity 1 W, 1 m (3.3 ft)	Frequency Range	Nominal Free Air Resonance	Voice Coil Diameter	Voice Coil Material	Magnetic Assembly Weight	Flux Density	Recommended Enclosure Volume	Depth	Net Weight
2105H	130 mm (5 in)	8 Ω	50 W	94 dB SPL[1]	300 Hz-15 kHz	200 Hz	22 mm ¾ in	Copper	0.74 kg 1⅝ lb	1.35 T (13,500 gauss)	6 litres 0.2 ft³	45 mm 1¾ in	1.2 kg 2⅝ lb
2110H	200 mm (8 in)	8 Ω	50 W	96 dB SPL[1]	60 Hz-10 kHz	60 Hz	51 mm 2 in	Aluminum	1.6 kg 3½ lb	0.85 T (8500 gauss)	56.85 litres 2-3 ft³	79 mm 3⅛ in	1.9 kg 4⅛ lb
2115H **2115J**	200 mm (8 in)	8 Ω 16 Ω	50 W	92 dB SPL[1]	40 Hz-15 kHz	55 Hz	51 mm 2 in	Aluminum	2.8 kg 6 lb	0.85 T (8500 gauss)	28-56 litres 1-2 ft³	98 mm 3⅞ in	3.4 kg 7½ lb
2202H **2202J**	300 mm (12 in)	8 Ω 16 Ω	300 W	99 dB SPL[2]	60 Hz-4 kHz[3]	50 Hz	102 mm 4 in	Copper	5.9 kg 13 lb	1.2 T (12,000 gauss)	57-113 litres 2-4 ft³	114 mm 4½ in	9.4 kg 20½ lb
2203H	300 mm (12 in)	8 Ω	200 W	91 dB SPL[2]	25 Hz-2 kHz[3]	16 Hz	102 mm 4 in	Copper	8.5 kg 18¾ lb	1.2 T (12,000 gauss)	42-85 litres 1½-3 ft³	114 mm 4½ in	9.4 kg 20½ lb
2205H **2205J**	380 mm (15 in)	8 Ω 16 Ω	300 W	97 dB SPL[2]	30 Hz-2 kHz[3]	28 Hz	102 mm 4 in	Copper	5.9 kg 13 lb	1.2 T (12,000 gauss)	142-227 litres 5-8 ft³	137 mm 5⅜ in	10.1 kg 22 lb
2215H	380 mm (15 in)	8 Ω	200 W	95 dB SPL[2]	35 Hz-2 kHz[3]	20 Hz	102 mm 4 in	Copper	10.3 kg 22¾ lb	0.95 T (9,500 gauss)	142-227 litres 5-8 ft³	149 mm 5⅞ in	13 kg 28¾ lb
2220H **2220J**	380 mm (15 in)	8 Ω 16 Ω	200 W	101 dB SPL[2]	40 Hz-2 kHz[3]	37 Hz	102 mm 4 in	Copper	8.6 kg 19 lb	1.15 T (11,500 gauss)	170-281 litres 6-10 ft³	139 mm 5½ in	10.4 kg 22¾ lb
2231H	380 mm (15 in)	8 Ω	200 W	94 dB SPL[2]	25 Hz-2 kHz[3]	16 Hz	102 mm 4 in	Copper	8.5 kg 18¾ lb	1.2 T (12,000 gauss)	85-170 litres 3-6 ft³	137 mm 5⅜ in	10.1 kg 22 lb

1. Sensitivity is measured with an input swept from 500 Hz to 2.5 kHz.
2. The sensitivity rating of JBL low frequency loudspeakers is based on a signal swept from 100 Hz to 500 Hz, rather than the conventional 1 kHz single frequency test signal, since these transducers are normally used below 800 Hz. Usable sensitivity of these low frequency loudspeakers, therefore, may be substantially greater than that of loudspeakers with higher published ratings.
3. The highest recommended crossover frequency for the 2202 is 1.2 kHz; for the other models, 800 Hz is the highest recommended crossover frequency.


2482
2420
2470
2410
2441
2402
2403
2461
2405


3152A
3182A
LF
HF
FREQUENCY DIVIDING NETWORK
JBL
INPUT
3115
3120
3110
3105
3106

HIGH FREQUENCY DRIVERS

JBL compression drivers utilize Alnico V magnets housed in heavy assemblies and large diameter edgewound ribbon voice coils. Wide range and ultra-high frequency units feature aluminum alloy diaphragms for exceptional bandwidth; high power drivers utilize phenolic diaphragms capable of withstanding the significantly greater amounts of power required for heavy-duty reinforcement applications.

2402, 2403, 2405 Ultra-High Frequency The 2402 is ideal for applications requiring directivity, penetration, and wide bandwidth. Its dispersion pattern is 40° conical at 10 kHz. The 2405 and 2403 provide smooth response and exceptionally wide dispersion, even at extremely high frequencies. The dispersion pattern for the 2405 is 90° x 30° at 16 kHz. The dispersion pattern for the 2403 is 90° x 45° at 12 kHz.

2410, 2420, 2441 Wide Range These units provide efficiency and wide, linear response. A ring of pure silver deposited on the circumference of the center pole piece of the 2410 and 2420 maintains uniform impedance through the highest frequencies, thus extending the bandwidth of the drivers.

2461, 2470, 2482 High Power Maintaining accuracy at high output levels, these compression drivers utilize phenolic impregnated linen diaphragms and edgewound ribbon voice coils to provide maximum power capacity and conversion efficiency. The 2482 is capable of generating extremely high sound pressure levels while delivering crisp, natural reproduction of speech.

Model	Horn Mouth Dimensions or Throat Diameter	Nominal Impedance	Power Capacity (Continuous Program)	Sensitivity[1] 1 W, 1 m (3.3 ft)	Frequency Range	Lowest Recommended Crossover Frequency[2]	Voice Coil Diameter	Voice Coil Material	Magnetic Assembly Weight	Flux Density	Diameter	Depth	Net Weight
2402	79 mm 3¼ in diameter	8 Ω	20 W	110 dB SPL	2.5 kHz-15 kHz	2.5 kHz	44 mm (1¾ in)	Aluminum	1.5 kg 3¼ lb	1.65 T (16,500 gauss)	98 mm 3⅞ in	83 mm 3¼ in	2 kg 4½ lb
2403	64 mm x 32 mm 2½ in x 1¼ in	16 Ω	20 W	105 dB SPL	5 kHz-21 kHz	5 kHz	44 mm (1¾ in)	Aluminum	1.5 kg 3¼ lb	1.65 T (16,500 gauss)	98 mm 3⅞ in	118 mm 4⅝ in	2.2 kg 4¾ lb
2405	79 mm x 18 mm 3.125 in x 0.725 in	16 Ω	20 W	105 dB SPL	6.5 kHz-21.5 kHz	7 kHz	44 mm (1¾ in)	Aluminum	1.5 kg 3¼ lb	1.65 T (16,500 gauss)	98 mm 3⅞ in	83 mm 3¼ in	2 kg 4½ lb
2410	25 mm 1 in	16 Ω	30 W	117 dB SPL	800 Hz-15 kHz	800 Hz	44 mm (1¾ in)	Aluminum	3.4 kg 7½ lb	1.6 T (16,000 gauss)	114 mm 4½ in	98 mm 3⅞ in	3.7 kg 8⅛ lb
2420	25 mm 1 in	16 Ω	30 W	118 dB SPL	800 Hz-20 kHz	800 Hz	44 mm 1¾ in	Aluminum	4.5 kg 10 lb	1.7 T (17,000 gauss)	146 mm 5¾ in	98 mm 3⅞ in	5 kg 11 lb
2441	51 mm 2 in	16 Ω	70 W	118 dB SPL	500 Hz-18 kHz	500 Hz	102 mm 4 in	Aluminum	10.8 kg 23¾ lb	1.8 T (18,000 gauss)	178 mm 7 in	136 mm 5⅜ in	11.3 kg 24⅞ lb
2461	25 mm 1 in	16 Ω	50 W	117 dB SPL	500 Hz-12 kHz	500 Hz	44 mm 1¾ in	Aluminum	3.4 kg 7½ lb	1.6 T (16,000 gauss)	114 mm 4½ in	98 mm 3⅞ in	3.7 kg 8⅛ lb
2470	25 mm 1 in	16 Ω	50 W	117 dB SPL	500 Hz-12 kHz	500 Hz	44 mm 1¾ in	Aluminum	4.5 kg 10 lb	1.7 T (17,000 gauss)	146 mm 5¾ in	98 mm 3⅞ in	5 kg 11 lb
2482	51 mm 2 in	16 Ω	120 W	118 dB SPL	300 Hz-6 kHz	300 Hz	102 mm 4 in	Aluminum	10.8 kg 23¾ lb	1.8 T (18,000 gauss)	178 mm 7 in	136 mm 5⅜ in	11.3 kg 24⅞ lb

1. Measured sensitivity of the 2402 and 2403 represents the SPL achieved with an input signal swept from 5 kHz to 20 kHz. Sensitivity of the 2405 is measured with a signal swept from 7 kHz to 20 kHz. Because the other drivers do not have integral horns, the same power/distance standards are not applicable. As specified by recognized standards organizations, the sensitivity of a compression driver is measured with the driver coupled to a terminated tube. The JBL sensitivity rating represents the SPL in a 25 mm (1 in) terminated tube, using a 1 mW input signal (0.126 V into 16 Ω) swept from the lowest recommended crossover frequency to 2.5 kHz. See the specifications on page 19 for the sensitivity of drivers when used with JBL high frequency horns.
2. A 2410 or 2420 can be used to 500 Hz, however, power capacity will be reduced to 10 W continuous program in the region between 500 Hz and 800 Hz.

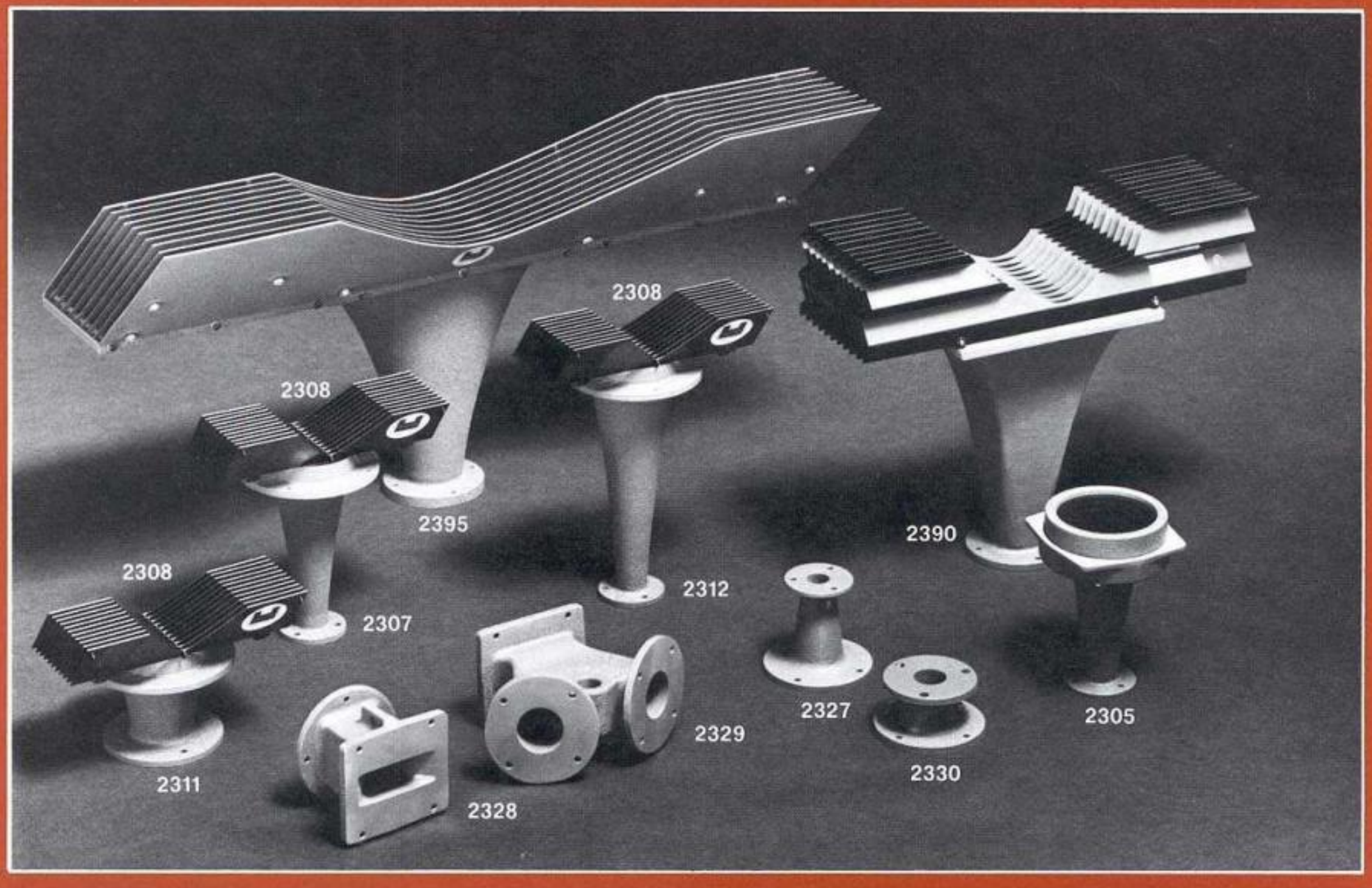
FREQUENCY DIVIDING NETWORKS

JBL high level, passive frequency dividing networks are intended for use with any high and low frequency driver combination. They use 12 dB per octave parallel L-C circuits with additional conjugate elements to cancel the inductive reactance of the low frequency loudspeaker. Highest quality components are used throughout—non-inductive, non-polarized capacitors having high AC current capacity built expressly for use in dividing networks; individually calibrated low-loss inductors; and heavy duty switches and resistors. High frequency shelving of networks crossing over below 7 kHz is accomplished with tapped autotransformers rather than conventional pads. The 3152 and 3182 are high power networks designed primarily for theater, auditorium or reinforcement installations; the others are for general applications.

Dividing Networks[1]

	Crossover Frequency	Power Capacity (Continuous Program)	Impedance		High Frequency Attenuation
			Low Frequency	High Frequency	
3105[2]	7 kHz	50 W	16 Ω	16 Ω	Continuously variable
3106[3]	8 kHz	50 W	16 Ω	16 Ω	Continuously variable
3110	800 Hz	100 W	8-16 Ω	16 Ω	6-8-10 dB, switch
3115	500 Hz	100 W	8-16 Ω	16 Ω	6-8-10 dB, switch
3120	1.2 kHz	75 W	8 Ω	16 Ω	0-3-6 dB, switch
3152A	500 Hz	250 W	8 Ω	16 Ω	0-2-4-6-8 dB, strap
3182A	800 Hz	250 W	8 Ω	16 Ω	0-2-4-6-8 dB, strap

1. General application networks (models 3105, 3106, 3110, 3115 and 3120) mount in a 108 x 140 mm (4¼ in x 5½ in) cutout. High power networks (models 3152A and 3182A) are usually mounted outside the enclosure and require an area 210 mm x 192 mm (8¼ in x 7½ in) for mounting.
2. The 3105 is optimized for a 2402, 2403 or 2405 installed in a system with a 2441 compression driver.
3. The 3106 is optimized for the 2402, 2403 or 2405 when used with a 2410, 2420, 2461 or 2470 compression driver.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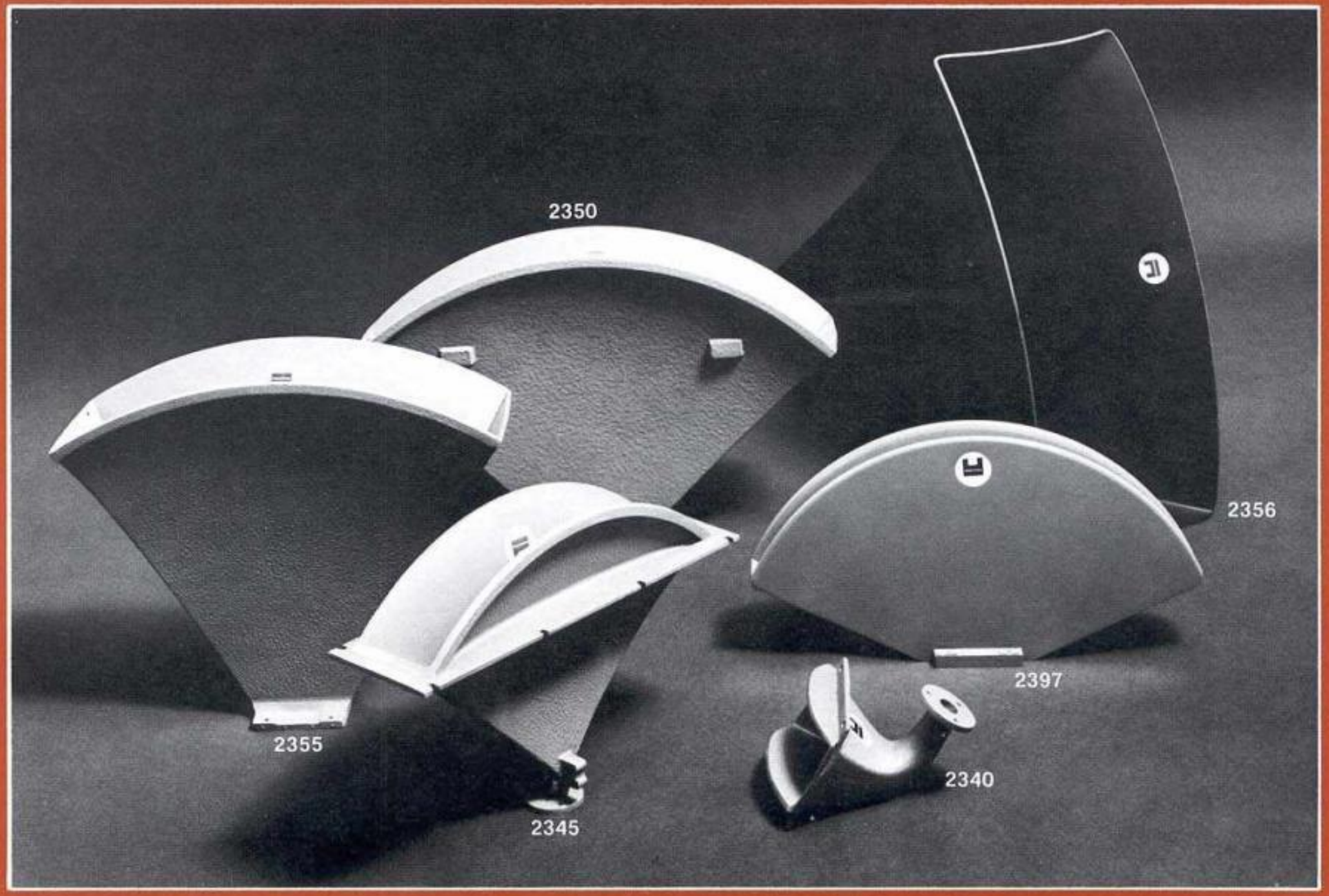
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HIGH FREQUENCY HORN/LENS ASSEMBLIES

Wide dispersion, uniform frequency response and soft edge patterns make JBL horn/lens assemblies particularly well suited for high quality music reproduction and for short throw sound reinforcement applications of 10 m to 20 m (30 ft to 60 ft).

2305 Horn/Lens The 2305 consists of a series of circular perforated plates providing a conical distribution pattern and is intended for applications in which the length of throw does not exceed 10 m (30 ft).

2308 Lens A 250 mm (10 in) slant-plate lens for use where the length of throw does not exceed 10 m (30 ft). The 2308 is used with a 2307, 2311 or 2312 horn.

2307 Exponential Horn The 2307 projects an 80° horizontal and 45° vertical pattern when combined with the 2308 lens. The combination constitutes a 2391 horn/lens assembly.

2311 Exponential Horn Identical in performance characteristics to the 2307, but accommodates 50 mm (2 in) JBL drivers. When combined with the 2308, the assembly constitutes a 2392 horn/lens.

2312 Exponential Horn Provides the same dispersion as the 2307 and 2311, but with the length optimized for an 800 Hz crossover frequency.

2390 Horn/Lens The complex appearance of the lens used in the 2390 is the result of folding the plates to reduce depth. The lens requires a baffle to function properly in the crossover region.

2395 Horn/Lens The 2395 provides an exceptionally wide pattern, does not require a baffle and is provided with brackets for free-standing installation on top of enclosures.

HORN ADAPTORS

2327 Adaptor Tapered for 50 mm (2 in) horn entry to 25 mm (1 in) driver. May be used in reverse with some loss above 8 kHz. Length: 105 mm (4⅛ in).

2328 Horn Throat Required to mount a 50 mm (2 in) JBL driver on the 2350, 2355 or 2397 horn. Length: 98 mm (3⅞ in).

2329 Dual Entry Throat Required to mount a pair of 50 mm (2 in) JBL drivers on the 2350, 2355 or 2397 horn. Length: 183 mm (7⅛ in).

2330 Adaptor Tapered to mount a 50 mm (2 in) JBL driver on a horn having a 36 mm (1.4 in) entry. Length: 60 mm (2⅜ in).

HIGH FREQUENCY HORNS

Radial The 2340, 2345, 2350, 2355 and 2356 produce the effortless, natural quality of JBL horn/lens combinations, but with much tighter pattern control.

Diffraction The 2397 provides an exceptionally wide, controlled pattern for applications in which a lens is not desirable. The waveform is conducted through six internal exponential passages into a common bell.

Constructed of dense wood, the 2397 is noted for its smooth, transparent sound character. It has been used with great success in custom-designed studio monitors.

Model	Type	Dispersion Pattern (Horizontal x Vertical)	Crossover Frequency	Sensitivity[2] 1 W, 1 m (3.3 ft)	Entry Diameter Or Throat Required[3]	Dimensions (Height x Width x Depth)	Baffle Cutout Diameter	Net Weight
2305	Perforated Plate	90° conical	1.2 kHz	109 dB SPL	25 mm 1 in	146 mm (5¾ in) diameter x 197 mm (7¾ in) length	133 mm 5¼ in	1.4 kg 3¼ lb
2308[1]	Slant Plate	80° x 45°				156 mm x 254 mm x 63 mm 6¼ in x 10 in x 2½ in		0.5 kg 1 lb
2307	Exponential		1.2 kHz	106 dB SPL	25 mm 1 in	156 mm (6¼ in) diameter x 216 mm (8½ in) length	108 mm 4¼ in	1.1 kg 2½ lb
2311	Exponential		1.2 kHz	106 dB SPL	51 mm 2 in	156 mm (6¼ in) diameter x 117 mm (4⅝ in) length	108 mm 4¼ in	0.9 kg 2 lb
2312	Exponential		800 Hz	106 dB SPL	25 mm 1 in	156 mm (6¼ in) diameter x 293 mm (11½ in) length	108 mm 4¼ in	1 kg 2¼ lb
2390	Folded Plate	100° x 45°	800 Hz[4]	107 dB SPL	51 mm 2 in		152 mm x 259 mm 6 in x 9 in	5 kg 11 lb
Horn						191 mm x 267 mm x 305 mm 7½ in x 10½ in x 12 in		
Lens						178 mm x 505 mm x 118 mm 7 in x 19⅞ in x 4⅝ in		
2395	Slant Plate	140° x 45°	800 Hz	108.5 dB SPL	51 mm 2 in	381 mm x 914 mm x 476 mm 15 in x 36 in x 18⅞ in	Free-standing brackets supplied	11.6 kg 25½ lb
2340	Radial right angle	80° x 60°	1.2 kHz	108 dB SPL	25 mm 1 in	206 mm x 213 mm x 213 mm 8⅛ in x 8⅜ in x 8⅜ in		2 kg 4½ lb
2345	Radial	90° x 40°	800 Hz	111 dB SPL	25 mm 1 in	171 mm x 568 mm x 391 mm 6¾ in x 22⅜ in x 15⅜ in		6.6 kg 14½ lb
2350	Radial	90° x 40°	500 Hz	111 dB SPL	2328 or 2329	203 mm x 803 mm x 508 mm 8 in x 31⅝ in x 20 in		11.6 kg 25½ lb
2355	Radial	60° x 40°	500 Hz	114 dB SPL	2328 or 2329	203 mm x 613 mm x 508 mm 8 in x 24⅛ in x 20 in		7.3 kg 16 lb
2356	Radial	40° x 20°	300 Hz	119 dB SPL	51 mm 2 in	419 mm x 838 mm x 1238 mm 16½ in x 33 in x 48¾ in		11.2 kg 24¾ lb
2397	Diffraction	140° x 60°	800 Hz	108 dB SPL	2328 or 2329	95 mm x 660 mm x 340 mm 3¾ in x 26 in x 13⅜ in		4.4 kg 9¾ lb

1. The 2308 is used with a 2307, 2311 or 2312 exponential horn.
2. Sensitivity is the SPL measured on-axis with an input signal swept from the lowest recommended crossover frequency to 2.5 kHz, with any JBL driver. Sensitivity of the 2307, 2311 and 2312 is quoted with the 2308 lens in place.
3. The entry diameter of a horn indicates the corresponding horn mouth diameter of the JBL compression driver that will bolt directly to the unit without adaptors. The 2328 and 2329 throats will accept one or two 50 mm (2 in) JBL drivers respectively. The 2327 adaptor can be bolted to the throat if it is desirable to substitute 25 mm (1 in) JBL drivers. The 2327 can also be used to reduce the 50 mm (2 in) entry of the 2390 or 2395 to accommodate 25 mm (1 in) JBL drivers.
4. Operation of the 2390 down to 500 Hz is feasible in motion picture sound systems or in applications where vertical pattern control is not essential, provided a baffle is used in the vertical plane.


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5234


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6008


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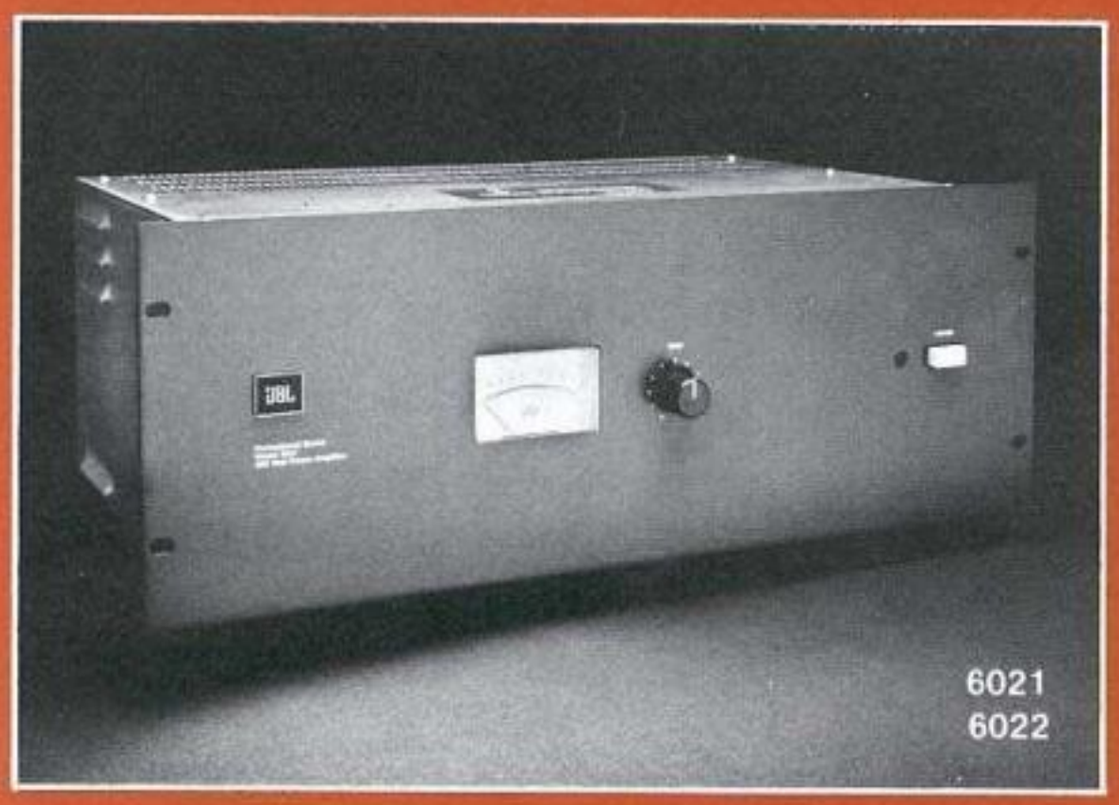
6012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6502

ELECTRONIC FREQUENCY DIVIDING NETWORKS

5233 Single Channel, 5234 Dual Channel JBL electronic frequency dividing networks are designed for studio monitor or sound reinforcement applications. The 5233 is for bi-amplification of a two-way loudspeaker system. The 5234 can be used for bi-amplification of two independent two-way systems or to tri-amplify one three-way loudspeaker system.

Performance and operational characteristics of the two models are identical, featuring a continuously variable high frequency shelving control for each channel, unity gain in the pass band, 12 or 18 dB per octave filter slopes, unbalanced low impedance outputs, less than 0.5% THD at +18 dBm and a signal/noise ratio greater than 90 dB.

The crossover frequency is selected by inserting an accessory printed circuit card into each channel's circuitry. A card is supplied which converts a crossover channel to a unity gain audio distribution amplifier having one input and two outputs.

Panel finish is dark gray semi-gloss baked enamel. Either unit mounts in one EIA standard rack space. Net weight and dimensions are the same for both units: 1.8 kg (4 lb), 44 mm x 483 mm x 194 mm deep (1¾ in x 19 in x 7⅝ in deep).

Crossover Cards for the 5233 and 5234

Model	Use
51-5130[1]	Blank Card, Unloaded 18 dB/O
51-5132	500 Hz 18 dB/O
51-5133	800 Hz 18 dB/O
52-5120[1]	Blank Card, Unloaded 12 dB/O
52-5121	250 Hz 12 dB/O
52-5122	500 Hz 12 dB/O
52-5123	800 Hz 12 dB/O
52-5124	1.2 kHz 12 dB/O
52-5125	5 kHz 12 dB/O
52-5127	7 kHz 12 dB/O
52-5140	For use with the 4343 or 4350 Studio Monitors

1. The blank cards are etched with a circuit requiring installation of resistors and capacitors to construct crossovers for other frequencies.

POWER AMPLIFIERS

6000 Series Single Channel The 6000 Series amplifiers are a family of high-quality, high-reliability amplifiers designed for fixed reinforcement, studio monitor and paging applications. They feature rapid service access, high sensitivity, unbalanced bridging inputs which may be converted to balanced bridging or matching by adding optional JBL Model 5195 transformers, and direct-coupled outputs which deliver rated power into 4 Ω loads. The 6007, 6011 and 6021 have full-isolation output transformers which provide rated power to 8 Ω, 16 Ω or 70.7 V loads. Output transformers may be added at any time to the direct-coupled models 6008, 6012 and 6022.

Chatter-free protection circuitry prevents driver-damaging spikes when clipping occurs. A switch on the rear panel activates a 250 Hz low cut filter. Specifications are met with convection cooling.

Front panel finish is dark gray semi-gloss baked enamel. All units are 483 mm (19 in) wide and 327 mm (12⅞ in) deep. The 6021 and 6022 are 178 mm (7 in) high and mount in four EIA standard rack spaces; the other amplifiers are 146 mm (5¾ in) high and mount in three EIA standard rack spaces.

6502 Mixer/Amplifier The JBL 6502 combines an eight-input (six microphone and two line level) mixer with a high power, single-channel amplifier. Simpler to install than a rack-assembled system, the JBL 6502 is ideal for sound systems for auditoriums, gymnasiums, churches, and meeting halls.

Each of the six microphone inputs accepts an unbalanced, high-impedance signal. An optional, plug-in transformer will convert an input to balanced low impedance. The line inputs are unbalanced, high impedance, and may be converted to balanced low impedance with accessory plug-in transformers. One of the microphone inputs may be internally switched to RIAA phono characteristics, and a pair of RCA-type jacks on the rear panel permits a stereo source to be fed to this input.

Each input has its own level control, and the 6502 also has a master level control and a separate level control for the headphone monitor output. Bass and treble tone controls allow equalization of the program source, and a mixer output ahead of the power amplifier permits connection of an accessory equalizer if desired. The 6502 also has a cue switch that disconnects the mixer output from the amplifier. A meter with switchable range allows visual monitoring.

The power amplifier produces 200 W from 20 Hz to 20 kHz with less than 0.2% THD. An accessory output transformer allows full-power operation into 8 Ω or 16 Ω loads, or into a 70.7 V line.

Power Amplifiers

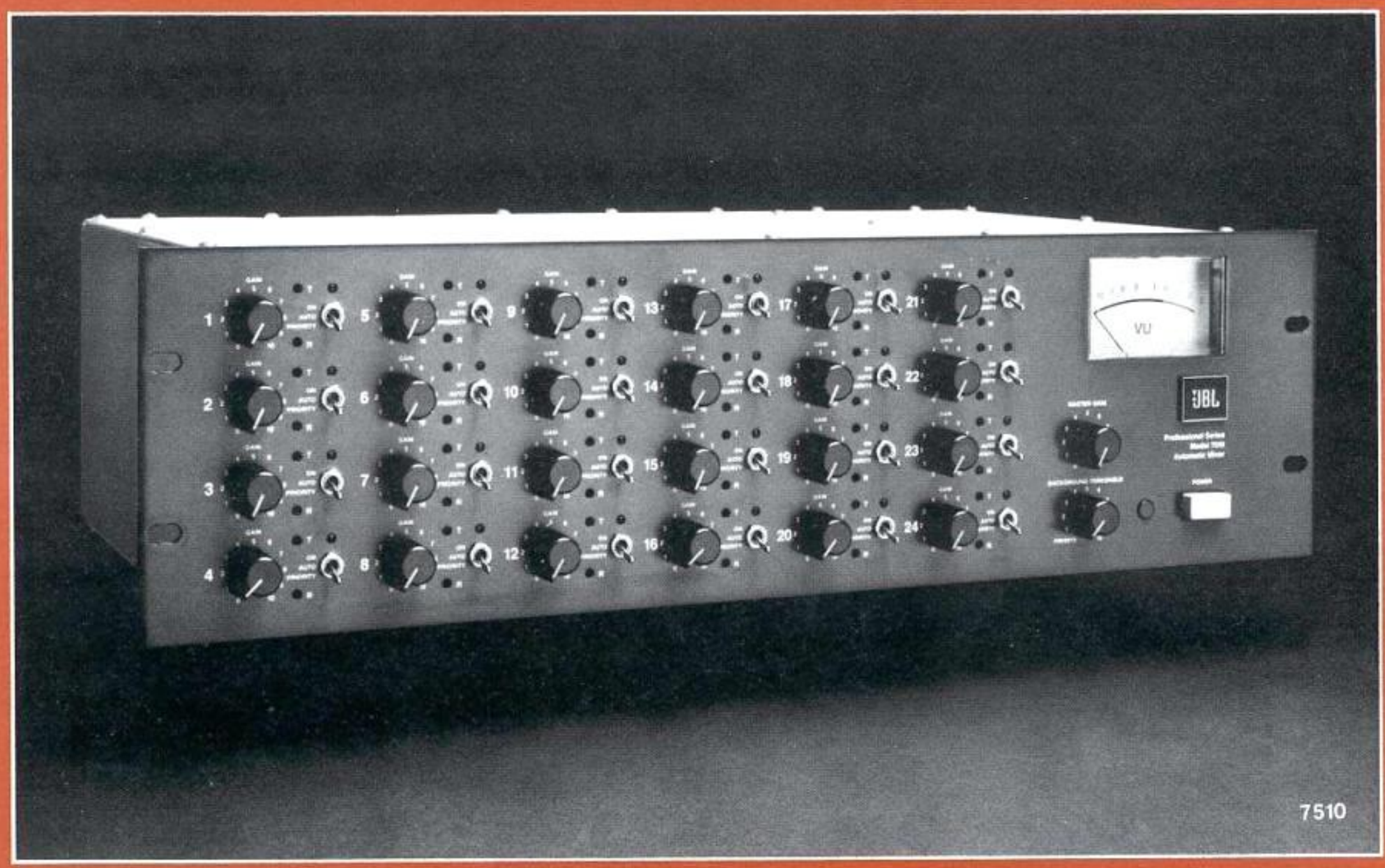
Model	Input Sensitivity[1]	Power Output[2] (Continuous Sine Wave) Per Channel	Total Harmonic Distortion[3]	Intermodulation Distortion			Signal/Noise Ratio (rated output)	Transformer Outputs[4]	Direct Output	Net Weight
				at rated output	at 10 W	at 0.15 W				
6007/8	0.4 V	60 W	Less than 0.2%	Less than 0.2%	Less than 0.2%	Less than 0.2%	Better than 90 dB	8 Ω, 16 Ω or 70.7 V	4 Ω minimum	6007, 12.7 kg (28 lb) 6008, 10.5 kg (23 lb)
6011/12	0.55 V	100 W	Less than 0.2%	Less than 0.2%	Less than 0.2%	Less than 0.2%	Better than 90 dB	8 Ω, 16 Ω or 70.7 V	4 Ω minimum	6011, 18.5 kg (41 lb) 6012, 13.5 kg (30 lb)
6021/22	0.78 V	200 W	Less than 0.2%	Less than 0.2%	Less than 0.1%	Less than 0.1%	Better than 100 dB	8 Ω, 16 Ω or 70.7 V	4 Ω minimum	6021, 21 kg (47 lb) 6022, 16 kg (35 lb)
6502 (Amplifier Section)[5]	0.78 V	200 W	Less than 0.2%	Less than 0.2%	Less than 0.1%	Less than 0.1%	Better than 100 dB	8 Ω, 16 Ω, or 70.7 V[6]	4 Ω minimum	16 kg (35 lb)

1. Unbalanced high impedance. A 5195 matching bridging transformer may be added for low impedance and/or balanced input.
2. Power output quoted from 20 Hz to 20 kHz into a 4 Ω load.
3. Quoted at rated output into a 4 Ω load.
4. Applicable to 6007, 6011, 6021 only.
5. For mixer/preamplifier electrical specifications, refer to 5302 mixer/preamplifier.
6. With optional 60-6022 transformer installed.


5152


5302


7130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7510

MIXERS AND PREAMPLIFIERS

5152 Preamplifier The 5152 is a dual input, single output mixer/preamplifier ideally suited for voiceover announcement, it exhibits flat, wideband response with exceptionally low noise and distortion. In the override mode, closure of a contact at a paging location opens the first channel and simultaneously reduces gain of the second channel by 15 dB to allow clear announcement. In the mix mode, level of each channel is determined by its respective front panel control.

Both channels accept high impedance microphone or line inputs; low impedance microphone or line inputs can also be accommodated via optional JBL 5195 plug-in transformers. The second channel can be switched to RIAA phono equalization, and is provided with two parallel phono jacks to derive a mono signal from a stereo magnetic cartridge. The output transformer supplied provides balanced low impedance line drive; unbalanced direct output is also available. On/off transients are prevented by a relay.

5302 Mixer/Preamplifier The JBL 5302 is a versatile, solid-state mixer/preamplifier capable of combining two line and six microphone inputs. Each of the microphone inputs is designed to accept an unbalanced, high impedance signal. These inputs may be converted to accept balanced, low impedance microphones by inserting accessory transformers in the sockets provided for that purpose.

The two line inputs are also wired for unbalanced, high impedance operation. Optional accessory transformers may be used to convert these to balanced high or low impedance inputs.

For maximum flexibility, the 5302 is equipped with individual input level controls, a master gain control, and a monitor level control. Separate high and low frequency rotary tone controls affect output above 2.5 kHz and below 400 Hz, respectively.

A monitor cue In/Out switch permits mixer output to be switched off, allowing full use of the mixer for cueing. The monitor output, available at the phone jack on the front panel, can be used for headphones or to drive an auxiliary amplifier. For balanced 600 Ω output, an optional accessory output transformer is available.

SPECIAL PURPOSE ELECTRONICS

7130 Compressor/Limiter The 7130 is a solid-state, dual-input compressor/limiter capable of automatic gain control over a range of 30 dB. It offers three switch selectable functions (OUT, COMPRESS, and LIMIT) as well as three selectable release and attack times. The threshold of compression is controlled by a variable input level attenuator. This combination of features ensures optimum performance under a variety of sound reinforcement conditions.

In the function OUT mode, the 7130 operates as a line amplifier and may be utilized to maintain the proper gain structure within a system.

The COMPRESS and LIMIT modes offer 2:1 and 20:1 compression ratios, respectively.

The 7130 accepts high impedance, unbalanced microphone or line inputs. The output is either transformer isolated or direct and will drive a 600 ohm balanced or unbalanced line. Added versatility is provided through alternate input configurations. Balanced low impedance microphone or line inputs can be accommodated by inserting JBL 5901 microphone input transformers or JBL 5195 matching/bridging transformers in sockets on the rear of the chassis.

7510 Automatic Microphone Mixer The JBL 7510 is a flexible, solid-state microphone mixer that is designed to eliminate typical mixer shortcomings. It combines exceptionally low distortion, low noise, flat frequency response, and wide input dynamic range. The unit also features adjustable threshold and release time, as well as an extremely fast attack to guard against turn-on problems.

The 7510's unique modular input construction allows the user to tailor the system for a variety of applications. Each input module contains four separate input channels; a maximum of six modules may be inserted in a single 7510 chassis. Individual input channels feature front panel controls for level, threshold, release time, and mode selection.

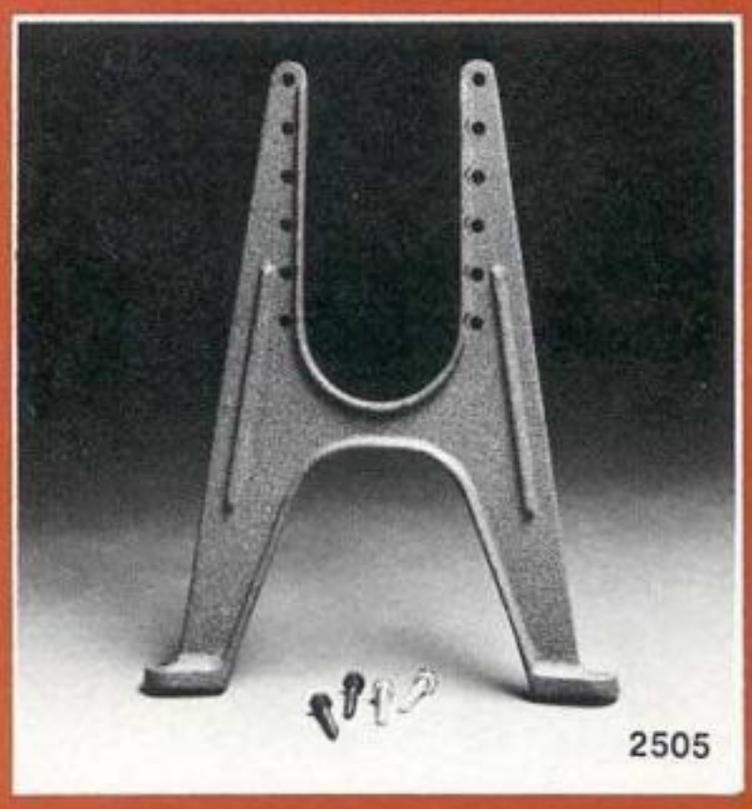
The mode selection switch allows each input channel to be placed in the manual, automatic, or priority mode. In the manual mode, the 7510 operates as a standard mixer. In the automatic mode, the unit utilizes a Background/Threshold Program Discriminator to differentiate between separate signals on individual microphones and common signals on all microphones. When an input channel is switched to the priority mode, activation of that input's microphone will cause all inputs switched to automatic to be muted.

The mixer also features a digital signal attenuator that provides feedback suppression by decreasing the system's output by 3 dB for each doubling of activated microphones. Additional performance capabilities are provided by a built-in, 48 V phantom power supply and direct outputs for each input channel.

The 7510's combination of innovative features makes it an ideal choice for use in board rooms, city council chambers, courtrooms, churches, and other similar applications.

Model	Gain	Maximum Output Level	Frequency Response	Total Harmonic Distortion	Intermodulation Distortion	Equivalent Input Noise[1]	Panel Finish	Dimensions	Mounting	Net Weight
5152	Microphone 57 dB high impedance 71 dB low impedance Line 26 dB Phono 53 dB at 1 kHz	+24 dBm balanced +18 dBm unbalanced	20 Hz-20 kHz +0, −1 dB	Less than 0.2%	Less than 0.2%	−125 dBm	Semi-gloss baked enamel, dark gray	44 mm x 483 mm x 238 mm deep 1¾ in x 19 in x 9⅜ in deep	1 EIA standard rack space	3.6 kg 8 lb
5302	Microphone 60 dB high impedance 80 dB low impedance Line 29 dB Phono 53 dB at 1 kHz	+18 dBm	20 Hz-20 kHz ±1 dB	Less than 0.2%	Less than 0.03%	−124 dBm	Semi-gloss baked enamel, dark gray	133 mm x 483 mm x 236 mm deep 5¼ in x 19 in x 9⅜ in deep	3 EIA standard rack spaces	7.2 kg 15¾ lb
7130	Microphone 60 dB high impedance 80 dB low impedance Line 30 dB high impedance 30 dB low impedance	+18 dBm	20 Hz-20 kHz ±1 dB	Less than 0.2%	Less than 0.2%	−124 dBm	Semi-gloss baked enamel, dark gray	89 mm x 483 mm x 195 mm deep 3½ in x 19 in x 7⅝ in deep	2 EIA standard rack spaces	4.0 kg 9 lb
7510	Microphone 83 dB	+25 dBm	20 Hz-20 kHz ±0.3 dB	0.075%	0.075%	−130 dBm	Semi-gloss baked enamel, dark gray	133 mm x 483 mm x 292 mm deep 5¼ in x 19 in x 11½ in deep	3 EIA standard rack spaces	

1. 20 kHz bandwidth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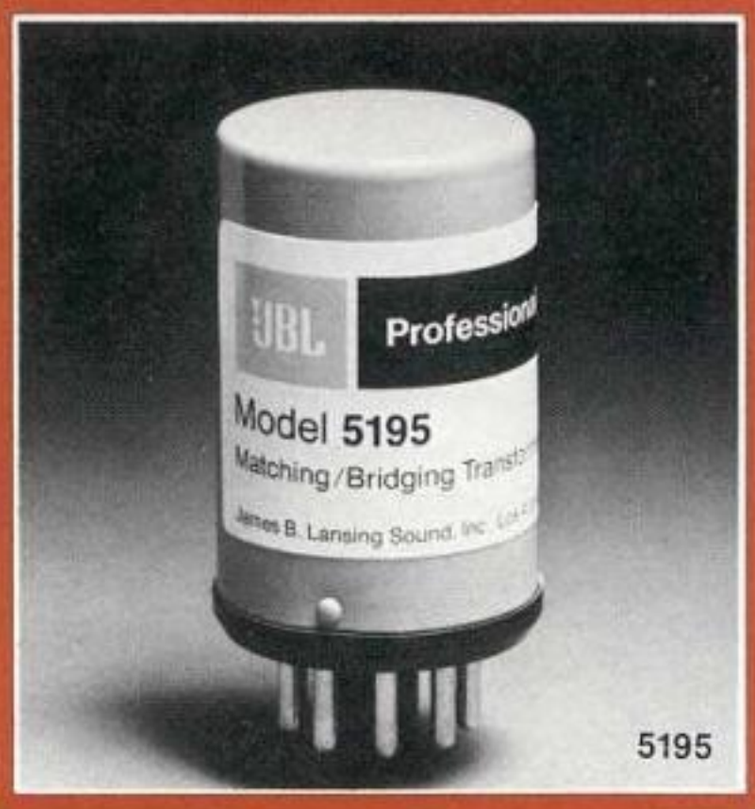

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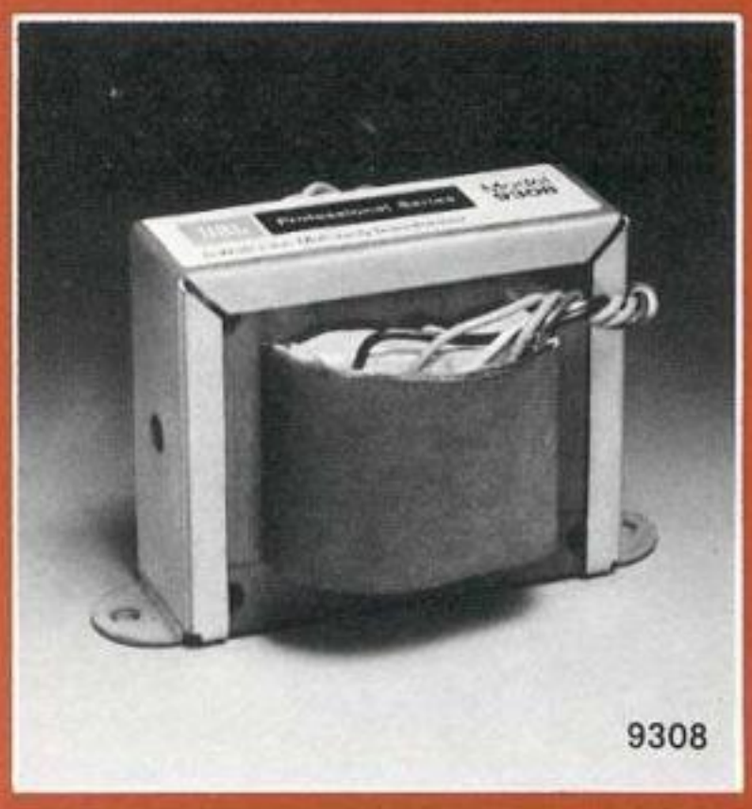
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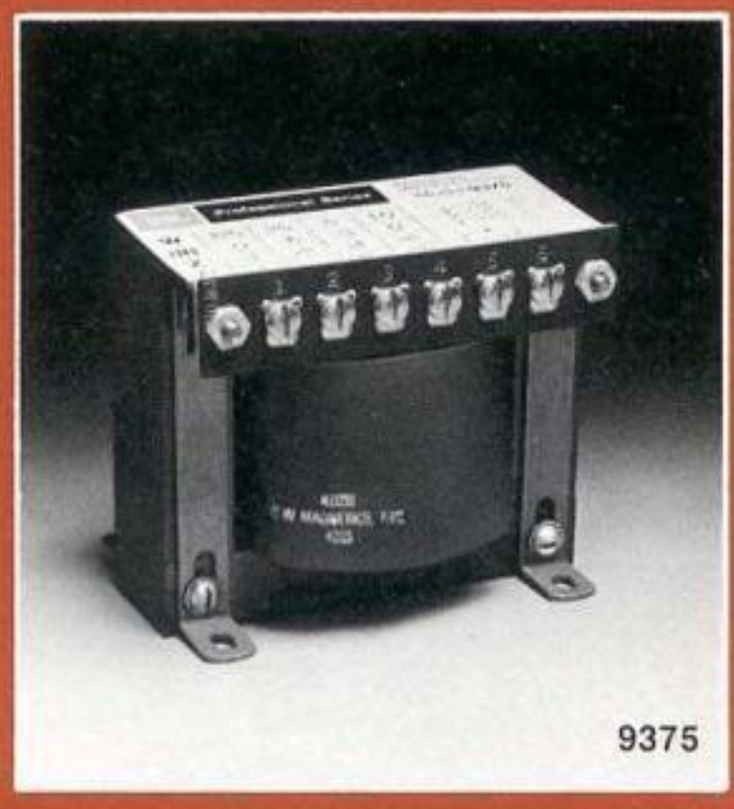
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ACCESSORIES

MA15 Loudspeaker Mounting Kit The MA15 simplifies front mounting of JBL 380 mm (15 in) loudspeakers and permits a degree of latitude in the diameter of the mounting cut-out. The kit consists of a sealing gasket, four cast clamps and four mounting screws with T-nuts. The clamps and mounting hardware can also be used for JBL 300 mm (12 in) and 460 mm (18 in) loudspeakers, but it will be necessary to make a sealing gasket specifically for such applications. Two MA15 kits should be used to mount the E151 460 mm (18 in) loudspeaker, due to that unit's additional mass. The MA15, however, cannot be used to mount an E145 380 mm (15 in) loudspeaker since the clamps will not fit the unit's frame.

MA25 Horn/Lens Mounting Kit The MA25 is designed to allow external mounting of a JBL 2390 horn/lens assembly. The kit includes mounting brackets, baffle, and all required mounting hardware.

2504 Ultra-High Frequency Driver Mount Designed for mounting a 2402 or 2405 in the mouth of a 4560, this bracket may be used for other add-on applications involving those transducers.

2505 Adjustable Horn Mount A cast iron rear mount for orientation of any JBL high frequency horn having a 50 mm (2 in) throat. The 2505 attaches at the 4-bolt flange of the horn and is held in place by the same bolts that secure the horn to the driver. The 2505 is 330 mm (13⅛ in) high and allows adjustment of driver height in 25 mm (1 in) increments. The base mounts on a horizontal surface with mounting holes spaced 235 mm (9¼ in) apart. The 2505 is furnished standard with the 2395 horn/lens.

5195 Matching/Bridging Transformer Provides balanced line inputs (15 kΩ bridging or 600 Ω matching) for the 6000 series power amplifiers, the 5302 mixer/preamplifier, the 6502 mixer/power amplifier, and balanced microphone or line inputs for the 5152 preamplifier. The 5195 can also be used to convert the standard +10 dBm output of a 5600-2B to a 600 Ω balanced line. Frequency response is 30 Hz to 20 kHz with less than 1% distortion at +20 dBm. Mu-metal case and hum-bucking windings provide 90 dB of shielding.

5901 Microphone Input Transformer The 5901 converts a microphone channel of the 5302 or 6502 to a balanced input for a low impedance microphone. Frequency response is 30 Hz to 20 kHz with less than 1% distortion at −55 dBm. Mu-metal case and hum-bucking windings provide effective shielding of 90 dB.

9308 70 V Line Matching Transformer The 9308 is a 70 V transformer with primary taps at 1 W, 2 W, 4 W and 8 W. The secondary winding will match 4 Ω, 8 Ω or 16 Ω loudspeakers. Rated at 8 W with THD of less than 1% in any configuration, 30 Hz to 15 kHz.

9375 100 W Line Matching Transformer The 9375 is a 100 W impedance-matching autotransformer. It allows matching 4 Ω, 8 Ω, 16 Ω and 32 Ω loads in any combination. As an example, a 9375 may be used to match two 16 Ω high frequency drivers to a 16 Ω network. THD is less than 1%, 30 Hz to 15 kHz, in any configuration.

JBL continually engages in research related to product improvement. New materials, production methods and design refinements are introduced into existing products without notice as a routine expression of that philosophy. For this reason, any current JBL product may differ in some respect from its published description but will always equal or exceed the original design specifications unless otherwise stated.

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