

JBL  
Professional  
Series

**JBL**

# JBL Professional Series

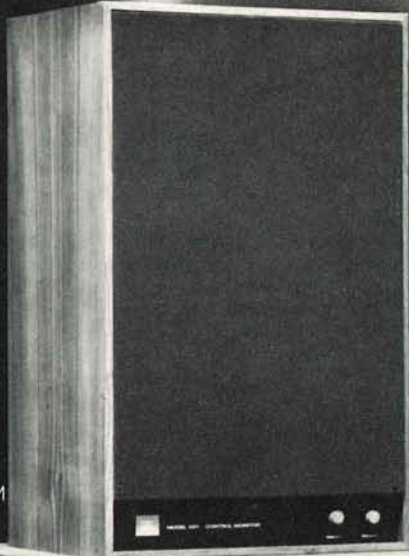
This catalog contains JBL's current Professional Series loudspeaker systems, components and electronics. They reflect the very latest developments in acoustic and electronic engineering, and will provide the performance, durability and versatility required of professional installations.

Transducer capacities are described in terms of continuous program power, which is twice continuous sine wave power ("RMS"). 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. Unless otherwise noted, all active electronic products are designed for operation on 120/240V AC, 50/60 Hz.



4311



4315

4350



4301





4350 Components



4311 Components

**4301 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.

**4301E Broadcast Monitor, 2-way**

The 4301E 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 4301, can be driven to rated output with only 0.5-V input, and is fully protected against over-drive conditions. The 4301E is otherwise physically and acoustically identical to the 4301, and is also available in oiled walnut with a dark blue grille.

**4311 Control Monitor, 3-way**

A compact loudspeaker system designed for control rooms and other applications where space is restricted, the 4311 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.

**4315 Compact Studio Monitor, 4-way**

Exhibiting exceptionally smooth, wide-band reproduction, clarity, superior transient response and controlled dispersion, the 4315 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 4315 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.

**4350 Studio Monitor, 4-way**

JBL's largest monitor, the 4350 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.

	Frequency Response (±3 dB)	Power Capacity (Continuous Sine Wave)	Nominal Impedance	Sensitivity <sup>1</sup>		Crossover Frequencies <sup>2</sup>	Enclosure Volume	Exterior Dimensions (Height x Width x Depth)	Net Weight
				1 W, 1 m (3.3 ft)	1 mW, 30 ft (9.1 m)				
4301	45 Hz - 15 kHz	15 W	8Ω	88 dB SPL	39 dB SPL	2.5 kHz	30 litres 1 ft <sup>3</sup>	483 mm x 306 mm x 211 mm 19 in x 12 1/8 in x 11 1/4 in	12 kg 26 lb
4301E Loudspeaker, Amplified <sup>3</sup>	45 Hz - 15 kHz					2.5 kHz	28 litres 1 ft <sup>3</sup>	483 mm x 306 mm x 211 mm 19 in x 12 1/8 in x 11 1/4 in	13.5 kg 29 lb
4311	45 Hz - 15 kHz	40 W	8Ω	91 dB SPL	42 dB SPL	1.5 kHz, 6 kHz	40 litres 1.5 ft <sup>3</sup>	597 mm x 362 mm x 298 mm 23 1/2 in x 14 1/4 in x 11 3/4 in	19 kg 42 lb
4315	35 Hz - 20 kHz	60 W	8Ω	89 dB SPL	40 dB SPL	400 Hz, 2 kHz, 8 kHz	90 litres 3.2 ft <sup>3</sup>	854 mm x 524 mm x 327 mm 33 3/8 in x 20 7/8 in x 12 7/8 in	43 kg 95 lb
4350	30 Hz - 20 kHz	200 W below 250 Hz 100 W above 250 Hz	4Ω below 250 Hz 8Ω above 250 Hz	95.5 dB SPL	46.5 dB SPL	250 Hz, 1.1 kHz, 9 kHz	270 litres 9.5 ft <sup>3</sup>	889 mm x 124 mm x 508 mm 35 in x 4 7/8 in x 20 in	110 kg 243 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 4350 is the recommended crossover frequency for bi-amplification.

3. The 4301E has a built-in power amplifier with the following specifications: Sensitivity 0.5 V, Power Output 40 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.



4343



4333A



4331A





4331A Components

#### 4331A Studio Monitor, 2-way

A refinement of the classic JBL studio monitor, the 4331A 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.



4343 Components

#### 4333A Studio Monitor, 3-way

An expansion of the two-way system of the 4331A featuring an ultra-high frequency transducer that extends system bandwidth to 20 kHz,  $\pm 3$  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 4331A.

#### 4343 Studio Monitor, 4-way

JBL's most sophisticated medium-sized monitor, the 4343 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.

	Frequency Response ( $\pm 3$ dB)	Power Capacity <sup>1</sup> (Continuous Sine Wave)	Nominal Impedance	Sensitivity <sup>2</sup>		Crossover Frequencies <sup>3</sup>	Enclosure Volume	Exterior Dimensions (Height x Width x Depth)	Net Weight
				1 W, 1 m (3.3 ft)	1 mW, 30 ft (9.1 m)				
4331A	35 Hz - 15 kHz	75 W	8 $\Omega$	93 dB SPL	44 dB SPL	800 Hz	156 litres 5.5 ft <sup>3</sup>	778 mm x 619 mm x 514 mm 30 $\frac{3}{8}$ in x 24 $\frac{3}{8}$ in x 20 $\frac{1}{2}$ in	57 kg 125 lb
4333A	35 Hz - 20 kHz	75 W	8 $\Omega$	93 dB SPL	44 dB SPL	800 Hz, 8.5 kHz	156 litres 5.5 ft <sup>3</sup>	778 mm x 619 mm x 514 mm 30 $\frac{3}{8}$ in x 24 $\frac{3}{8}$ in x 20 $\frac{1}{2}$ in	59 kg 129 lb
4343	35 Hz - 20 kHz	75 W	8 $\Omega$	93 dB SPL	44 dB SPL	300 Hz, 1.25 kHz, 9.5 kHz	156 litres 5.5 ft <sup>3</sup>	1051 mm x 635 mm x 435 mm 41 $\frac{1}{8}$ in x 25 in x 17 $\frac{1}{8}$ in	79 kg 175 lb

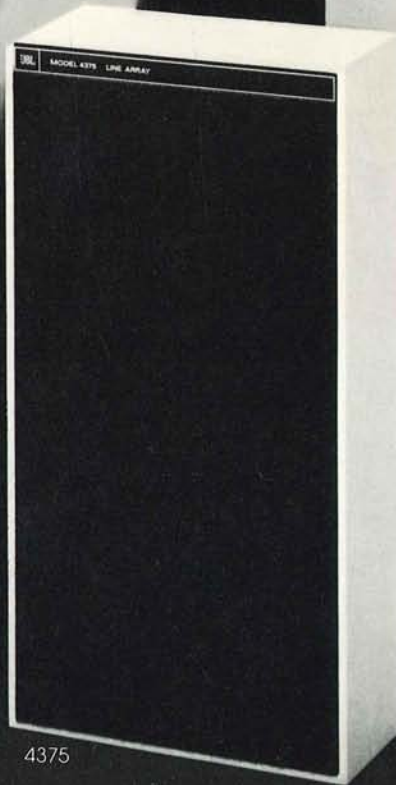
1. When bi-amplified, the 4331A and 4333A are rated at 75 W below 800 Hz and 30 W above 800 Hz. The 4343 is rated at 75 W below 300 Hz and 75 W above 300 Hz.

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

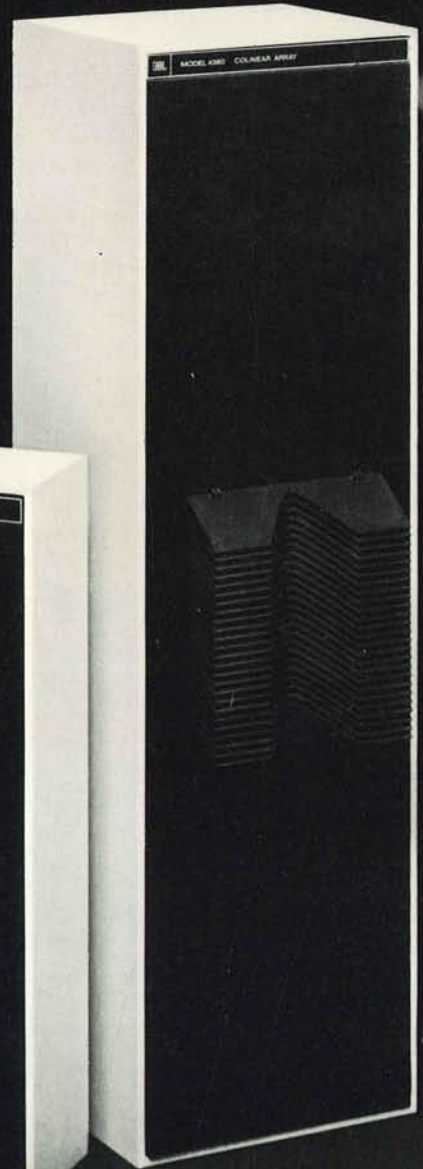
3. The lowest crossover frequency specified refers to operational characteristics with the network set for conventional passive operation, and is also the recommended crossover frequency for bi-amplification.



4682



4375



4380





**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. High sensitivity and durable design make them 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.

**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. The compact, shallow enclosure facilitates flush installation or concealment. It is available in textured gray with charcoal black fabric grille.

**4682 Line Array**

A rugged, powerful full range array for sound reinforcement or stage foldback, the 4682 features a molded enclosure capable of sustaining the rigors of transport without additional crating. Handles molded into both ends and sides include molded rigging holes for suspending the system. The 4682 utilizes four K110 250-mm (10-in) musical instrument loudspeakers, augmented by a 2902 high frequency power pack. The power pack consists of two 2402 ring radiators with a dividing network. Black enclosure, black nylon fabric grille.

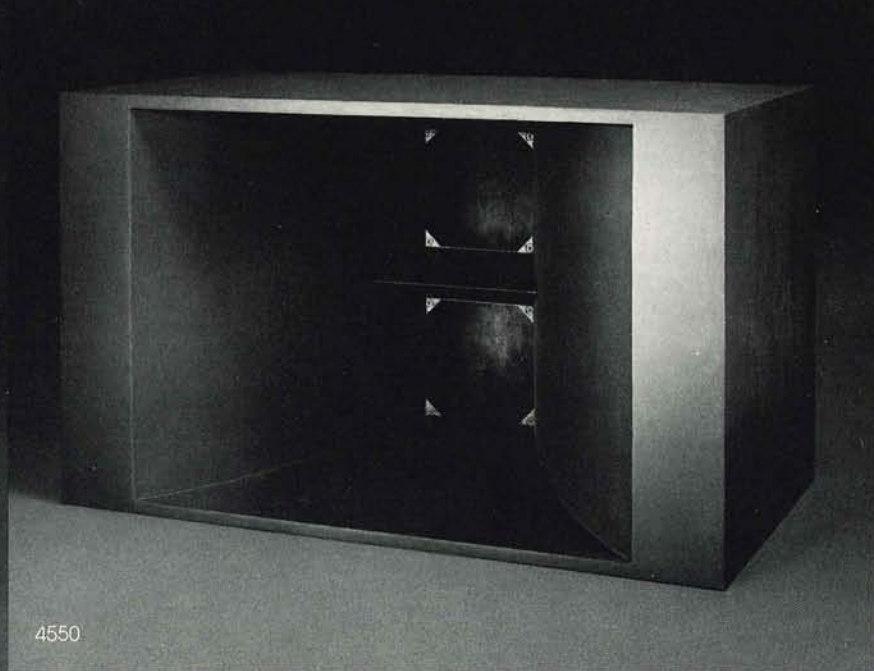
	Frequency Range	Dispersion (Horizontal x Vertical)	Nominal Impedance	Power Capacity (Continuous Program)	Sensitivity <sup>1</sup>		Components	Crossover Frequency	Enclosure Volume	Exterior Dimensions* (Height x Width x Depth)	Net Weight
					1 W, 1 m (3.3 ft)	1 mW, 30 ft (9.1 m)					
4375	150 Hz - 15 kHz	120° x 30°	8Ω	100 W	100 dB SPL	51 dB SPL	(4) 2105, 130 mm (5 in)		35 litres 1.2 ft <sup>3</sup>	762 mm x 400 mm x 165 mm 30 in x 15 1/4 in x 5 1/2 in	18 kg 39 lb
4380	55 Hz - 15 kHz	90° x 20°	8Ω	100 W	99 dB SPL	50 dB SPL	(4) 2110, 200 mm (8 in) (2) 2105, 130 mm (5 in)	1.5 kHz	95 litres 3.3 ft <sup>3</sup>	1213 mm x 362 mm x 289 mm 47 3/4 in x 14 1/4 in x 11 1/4 in	37 kg 81 lb
4682	55 Hz - 15 kHz	60° x 40°	8Ω	600 W	105 dB SPL	56 dB SPL	(4) K110, 250 mm (10 in) (1) 2902 HF power pack	3 kHz	150 litres 5.2 ft <sup>3</sup>	1321 mm x 438 mm x 343 mm 52 in x 17 1/2 in x 13 1/2 in	40 kg 88 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 (2 1/2 in).

	Frequency Response (±3 dB)	Power Capacity (Continuous Sine Wave)	Nominal Impedance	Sensitivity <sup>1</sup>		Crossover Frequencies	Enclosure Volume	Exterior Dimensions (Height x Width x Depth)	Net Weight Assembled Systems
				1 W, 1 m (3.3 ft)	1 mW, 30 ft (9.1 m)				
4662	40 Hz - 9 kHz	125 W	8Ω	103 dB SPL	54 dB SPL	800 Hz	422 litres 14.9 ft <sup>3</sup>	914 mm x 762 mm x 606 mm 36 in x 30 in x 23 3/4 in	60 kg 132 lb
4663	40 Hz - 21 kHz	250 W	8Ω	103 dB SPL	54 dB SPL	800 Hz, 8 kHz	422 litres 14.9 ft <sup>3</sup>	914 mm x 762 mm x 606 mm 36 in x 30 in x 23 3/4 in	64 kg 140 lb

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





## Low Frequency Horns

JBL low frequency horns 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 1/4-20 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.

### 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 50 Hz. The driver acts as a direct radiator above 150 Hz.

### 4550 Front Loading Dual Driver

The 4550 is a long throw directional horn for use below 800 Hz. The horn and sealed rear chamber increase driver sensitivity by 6 dB above 100 Hz while providing usable response to 50 Hz. The dispersion pattern at 800 Hz is 75° horizontal and 30° vertical.

### 4560A Front Loading Single Driver

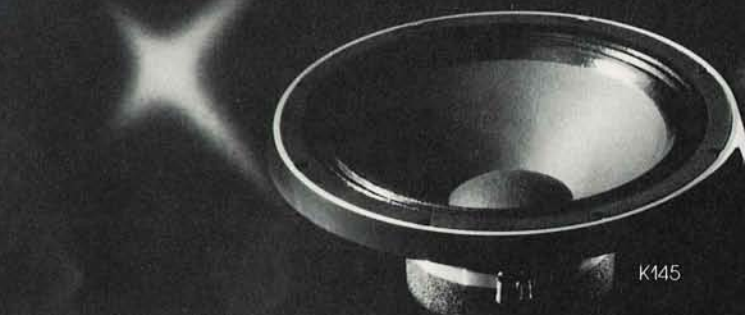
A long throw directional horn for use below 800 Hz, with usable response down to 60 Hz, the 4560 adds 6 dB to driver sensitivity above 200 Hz. Its dispersion pattern is 90° horizontal and 60° vertical at 800 Hz. Provision is made for installation of a 2345 horn with a 2410 or 2461 driver into the enclosure,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

	Recommended Driver	Lowest Usable Frequency	Exterior Dimensions (Height x Width x Depth)	Net Weight (Without Drivers)
4520	2205	30 Hz	1276 mm x 908 mm x 756 mm 50¼ in x 35¾ in x 29¾ in	98 kg 215 lb
4530	2205	50 Hz	1213 mm x 603 mm x 603 mm 47¾ in x 23¾ in x 23¾ in	54 kg 120 lb
4550	2220, 2205 <sup>1</sup>	50 Hz	1524 mm x 914 mm x 825 mm 60 in x 36 in x 32½ in	88 kg 195 lb
4560A	2220, 2205 <sup>1</sup>	50 Hz	914 mm x 762 mm x 606 mm 36 in x 30 in x 23¾ in	41 kg 91 lb

<sup>1</sup> When the 2205 is used in a 4550 or 4560 low frequency horn, some unloading of the driver cone will be experienced at very

low frequencies. Power usage, therefore, should be somewhat more conservative than normally specified for the 2205.





K145



K140



K151



K110



K130



K120





2901

**2901 Musical Instrument**

Designed to augment musical instrument loudspeakers or PA columns, the 2901 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 2901 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 2901 can be connected in parallel with systems rated up to 300 W continuous sine wave at 4Ω, 8Ω, or 16Ω. Crossover frequency is 3 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 2901 is 6.8 kg (15 lb).

JBL K Series loudspeakers deliver more sound per watt than other musical instrument loudspeakers. They exhibit deep, solid bass; crisp, clear midrange reproduction; and brilliant high frequency performance for distinctive tone character. New materials provide power handling capacity at least double that of earlier JBL musical instrument loudspeakers which, in their time, were considered to be the most powerful and reliable available.

K Series musical instrument loudspeakers feature the unmistakable sound quality and high efficiency that have become JBL hallmarks. When combined with improved power handling capacity that can meet the unprecedented demands of today's music, the result can be characterized only by the initials JBL.

2902



**2902 Reinforcement**

The 2902 is included in the 4682 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 4682. Net weight of the 2902 is 4.1 kg (9 lb).

Primary Application	Nominal Diameter	Nominal Impedance <sup>1</sup>	Power Capacity		Sensitivity <sup>2</sup>			Nominal Free Air Resonance	Voice Coil Diameter	Voice Coil Material	Magnetic Assembly Weight	Flux Density	Depth	Net Weight
			Continuous Sine Wave	Continuous Program	1 W, 1 m (3.3 ft)	1 mW, 30 ft (9.1 m)	Frequency Range							
K110 Lead or rhythm guitar, column, organ, piano, voice	250 mm 10 in	8Ω	75 W	150 W	98 dB SPL	49 dB SPL	60 Hz - 8 kHz	65 Hz	76 mm 3 in	Aluminum	3 kg 6½ lb	1.02 T (10,200 gauss)	111 mm 4¼ in	3.7 kg 8¼ lb
K120 Lead or rhythm guitar, electric piano, organ, vocals	300 mm 12 in	8Ω	100 W	200 W	101 dB SPL	52 dB SPL	50 Hz - 5 kHz	60 Hz	102 mm 4 in	Aluminum	5.4 kg 12 lb	1.2 T (12,000 gauss)	121 mm 4¾ in	6.4 kg 14 lb
K130 Lead or rhythm guitar, electric piano, organ, vocals	380 mm 15 in	8Ω	125 W	250 W	103 dB SPL	54 dB SPL	50 Hz - 5 kHz	40 Hz	102 mm 4 in	Aluminum	5.4 kg 12 lb	1.2 T (12,000 gauss)	143 mm 5½ in	7 kg 15 lb
K140 Electric bass, organ	380 mm 15 in	8Ω	150 W	300 W	98 dB SPL	49 dB SPL	40 Hz - 2.5 kHz	30 Hz	102 mm 4 in	Copper	5.4 kg 12 lb	1.2 T (12,000 gauss)	143 mm 5½ in	7 kg 15 lb
K145 Electric bass, organ	380 mm 15 in	8Ω	150 W	300 W	97 dB SPL	48 dB SPL	40 Hz - 2.5 kHz	35 Hz	102 mm 4 in	Copper	9 kg 19¾ lb	0.95 T (9500 gauss)	168 mm 6¾ in	11.7 kg 25¾ lb
K151 Electric bass, organ	460 mm 18 in	8Ω	150 W	300 W	99 dB SPL	50 dB SPL	35 Hz - 2 kHz	30 Hz	102 mm 4 in	Copper	9 kg 19¾ lb	1.2 T (12,000 gauss)	194 mm 7¾ in	11.9 kg 26¼ lb

1. The nominal impedance specified is the standard configuration. The K110, K120, K130, K140 and K145 are also available with an impedance of 16Ω. The K130 is also available with an impedance of 4Ω.

2. Sensitivity measured with an input swept from 500 Hz to 2.5 kHz.





2135



2150



2145



2130



2110



2120



2115



2105



**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 distributed ceiling installations for natural-sounding paging systems or limited bandwidth music reproduction. The 2105 is also useful as a midrange driver in medium efficiency monitor systems.

**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.

**2145 300-mm (12-in) Composite**

An integrated system consisting of a 300-mm (12-in) low frequency loudspeaker, separate 50-mm (2-in) high frequency direct radiator and 3-kHz frequency dividing network. Often used as a monitor system in limited space applications, its frame is shallow enough to allow installation within wall or ceiling structures for distributed music and paging systems.

**2150 380-mm (15-in) Composite**

Ideally suited for maximum intelligibility, high level paging systems and distributed reinforcement in large areas. It consists of a 380-mm (15-in) low frequency loudspeaker and a 130-mm (5-in) direct radiator integrated on a single frame. The 2150 may be installed in ported enclosures or in a 4530 low frequency horn. (The 3125, a 1200-Hz network, is optional.)

JBL Professional Series extended range loudspeakers are rugged, precision transducers for use in custom line arrays, distributed source installations and general applications. Frequency range extending through the major portion of the audio spectrum allows their use as single-driver systems; for reproduction of the extreme high frequencies each may be augmented by a compression driver equipped with the appropriate horn and acoustic lens. These drivers incorporate precisely machined, highly efficient magnetic assemblies; large edge-wound aluminum voice coils; and shallow, curvilinear cones. Pneumatically formed aluminum center domes provide high frequency reproduction.

Special Duty Loudspeakers

	Nominal Diameter	Nominal Impedance	Power Capacity (Continuous Program)	Sensitivity <sup>1</sup>		Frequency Range	Nominal Free Air Resonance	Voice Coil Diameter	Voice Coil Material	Magnetic Assembly Weight	Flux Density	Recommended Enclosure Volume	Depth	Net Weight
				1 W, 1 m (3.3 ft)	1 mW, 30 ft (9.1 m)									
2105	130 mm 5 in	8Ω	40 W	95 dB SPL	46 dB SPL	150 Hz - 15 kHz	200 Hz	22 mm 7/8 in	Copper	1.2 kg 2 3/4 lb	1.65 T (16,500 gauss)	6 litres 0.2 ft <sup>3</sup>	76 mm 3 1/8 in	1.4 kg 3 lb
2115	200 mm 8 in	8Ω or 16Ω	40 W	92 dB SPL	43 dB SPL	40 Hz - 15 kHz	55 Hz	51 mm 2 in	Aluminum	3 kg 6 1/2 lb	0.85 T (8,500 gauss)	28 - 56 litres 1 - 2 ft <sup>3</sup>	98 mm 3 7/8 in	3.6 kg 8 lb
2145		8Ω	35 W	92 dB SPL	43 dB SPL	40 Hz - 15 kHz	30 Hz					57 - 85 litres 2 - 3 ft <sup>3</sup>	111 mm 4 3/8 in	4.3 kg 9 1/2 lb
Low Frequency	300 mm 12 in							76 mm 3 in	Copper	3 kg 6 1/2 lb	1 T (10,000 gauss)			
High Frequency	50 mm 2 in							16 mm 5/8 in	Copper	0.7 kg 1 1/2 lb	1.2 T (12,000 gauss)			
2150		8Ω	50 W	100 dB SPL	51 dB SPL	50 Hz - 12 kHz	55 Hz					169 litres 6 ft <sup>3</sup>	146 mm 5 3/4 in	7.2 kg 15 3/4 lb
Low Frequency	380 mm 15 in							102 mm 4 in	Copper	5.7 kg 12 1/2 lb	1.15 T (11,500 gauss)			
High Frequency	130 mm 5 in							22 mm 7/8 in	Copper	1.2 kg 2 3/4 lb	1.65 T (16,500 gauss)			

Extended Range Loudspeakers

2110	200 mm 8 in	8Ω	20 W	97 dB SPL	48 dB SPL	60 Hz - 10 kHz	60 Hz	51 mm 2 in	Aluminum	1.6 kg 3 1/2 lb	0.9 T (9,000 gauss)	56 - 85 litres 2 - 3 ft <sup>3</sup>	79 mm 3 1/8 in	2 kg 4 1/2 lb
2120	250 mm 10 in	8Ω	60 W	98 dB SPL	49 dB SPL	50 Hz - 8 kHz	65 Hz	76 mm 3 in	Aluminum	3 kg 6 1/2 lb	1.02 T (10,200 gauss)	85 - 113 litres 3 - 4 ft <sup>3</sup>	111 mm 4 3/8 in	3.7 kg 8 1/4 lb
2130	300 mm 12 in	8Ω	100 W	101 dB SPL	52 dB SPL	50 Hz - 5 kHz	60 Hz	102 mm 4 in	Aluminum	5.9 kg 13 lb	1.2 T (12,000 gauss)	85 - 169 litres 3 - 6 ft <sup>3</sup>	127 mm 5 in	6.8 kg 15 lb
2135	380 mm 15 in	8Ω	100 W	103 dB SPL	54 dB SPL	40 Hz - 5 kHz	40 Hz	102 mm 4 in	Aluminum	5.9 kg 13 lb	1.2 T (12,000 gauss)	113 - 169 litres 4 - 6 ft <sup>3</sup>	146 mm 5 3/4 in	7.5 kg 16 1/2 lb

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

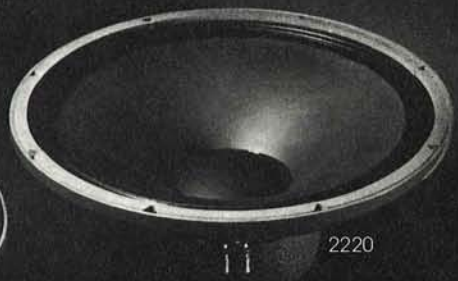




2205



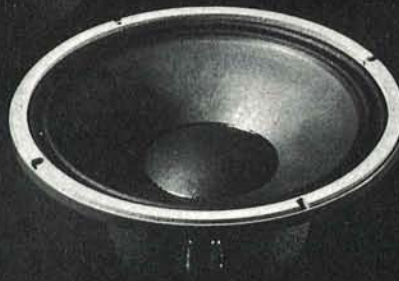
2231



2220



2245



2202



2203

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-inch) 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 magnetic structure utilizes a large Alnico V magnet, considerably more powerful than a ceramic magnet of comparable weight. The top plate, pole piece, and magnetic return casting are made from a low-loss iron alloy, and each component is precisely machined to concentrate the magnet's full strength in the voice coil gap.

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 <sup>1</sup>		Frequency Range <sup>2</sup>	Nominal Free Air Resonance	Voice Coil Diameter	Voice Coil Material	Magnetic Assembly Weight	Flux Density	Recommended Enclosure		Net Weight
				1 W, 1 m (3.3 ft)	1 mW, 30 ft (9.1 ft)							Volume	Depth	
2202	300 mm 12 in	8Ω	100 W	96 dB SPL	47 dB SPL	60 Hz - 4 kHz	50 Hz	102 mm 4 in	Copper	5.9 kg 13 lb	1.2 T (12,000 gauss)	57 - 113 litres 2 - 4 ft <sup>3</sup>	124 mm 4 7/8 in	6.8 kg 15 lb
2203	300 mm 12 in	8Ω	100 W	91 dB SPL	42 dB SPL	25 Hz - 2 kHz	16 Hz	102 mm 4 in	Copper	5.9 kg 13 lb	1.2 T (12,000 gauss)	42 - 85 litres 1 1/2 - 3 ft <sup>3</sup>	124 mm 4 7/8 in	6.8 kg 15 lb
2205	380 mm 15 in	8Ω or 16Ω	150 W	96 dB SPL	47 dB SPL	30 Hz - 2 kHz	30 Hz	102 mm 4 in	Copper	5.9 kg 13 lb	1.2 T (12,000 gauss)	142 - 227 litres 5 - 8 ft <sup>3</sup>	146 mm 5 3/4 in	7.5 kg 16 1/2 lb
2215	380 mm 15 in	8Ω or 16Ω	150 W	94 dB SPL	45 dB SPL	35 Hz - 2 kHz	20 Hz	102 mm 4 in	Copper	9.2 kg 20 1/4 lb	0.9 T (9,000 gauss)	142 - 227 litres 5 - 8 ft <sup>3</sup>	149 mm 5 7/8 in	10.7 kg 23 1/2 lb
2220	380 mm 15 in	8Ω or 16Ω	100 W	101 dB SPL	52 dB SPL	40 Hz - 2 kHz	37 Hz	102 mm 4 in	Copper	5.9 kg 13 lb	1.2 T (12,000 gauss)	170 - 281 litres 6 - 10 ft <sup>3</sup>	149 mm 5 7/8 in	7.7 kg 17 lb
2231	380 mm 15 in	8Ω	100 W	93 dB SPL	44 dB SPL	25 Hz - 2 kHz	16 Hz	102 mm 4 in	Copper	5.9 kg 13 lb	1.2 T (12,000 gauss)	85 - 142 litres 3 - 5 ft <sup>3</sup>	146 mm 5 3/4 in	7.5 kg 16 1/2 lb

1. 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.

2. The highest recommended crossover frequency for the 2202 is 1.2 kHz; for the other models, 800 Hz is the highest recommended crossover frequency.







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, 2405 Ultra-High Frequency**

The 2402 is suitable where directivity and penetration, as well as bandwidth, are required. Its dispersion pattern is 40° conical at 10 kHz. The 2405 provides smooth response and exceptionally wide dispersion, even at extremely high frequencies. For example, the dispersion pattern achieved by its integral diffraction horn is 90° x 30° at 16 kHz, and 65° x 25° at 20 kHz with widest coverage in the plane perpendicular to the length of the horn opening. Baffle cutout for either unit is 79 mm (3 1/8 in).

**2410, 2420, 2440 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.

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.

	Horn Mouth Dimensions or Throat Diameter	Nominal Impedance	Power Capacity (Continuous Program)	Sensitivity <sup>1</sup>		Frequency Range	Lowest Recommended Crossover Frequency <sup>2</sup>	Voice Coil Diameter	Voice Coil Material	Magnetic Assembly		Diameter	Depth	Net Weight
				1 W, 1 m (3.3 ft)	1 mW, 30 ft (9.1 m)					Weight	Flux Density			
2402	79 mm 3 1/8 in diameter	8Ω	20 W	110 dB SPL	61 dB SPL	2.5 kHz - 15 kHz	2.5 kHz	44 mm (1 3/4 in)	Aluminum	1.5 kg 3 3/4 lb	1.65 T (16,500 gauss)	98 mm 3 3/4 in	83 mm 3 1/4 in	2 kg 4 1/2 lb
2405	79 mm x 18 mm 3.125 in x 0.725 in	16Ω	20 W	105 dB SPL	56 dB SPL	6.5 kHz - 21.5 kHz	7 kHz	44 mm (1 3/4 in)	Aluminum	1.5 kg 3 3/4 lb	1.65 T (16,500 gauss)	98 mm 3 3/4 in	83 mm 3 1/4 in	2 kg 4 1/2 lb
2410	25 mm 1 in	16Ω	30 W	117 dB SPL		800 Hz - 15 kHz	800 Hz	44 mm (1 3/4 in)	Aluminum	3.4 kg 7 1/2 lb	1.6 T (16,000 gauss)	114 mm 4 1/2 in	98 mm 3 3/4 in	3.7 kg 8 1/4 lb
2420	25 mm 1 in	16Ω	30 W	118 dB SPL		800 Hz - 20 kHz	800 Hz	44 mm (1 3/4 in)	Aluminum	4.5 kg 10 lb	1.7 T (17,000 gauss)	146 mm 5 3/4 in	98 mm 3 3/4 in	5 kg 11 lb
2440	51 mm 2 in	16Ω	60 W	118 dB SPL		500 Hz - 12 kHz	500 Hz	102 mm 4 in	Aluminum	10.8 kg 23 3/4 lb	2.05 T (20,500 gauss)	178 mm 7 in	136 mm 5 1/4 in	11.3 kg 24 3/4 lb
2461	25 mm 2 in	16Ω	50 W	117 dB SPL		500 Hz - 12 kHz	500 Hz	44 mm (1 3/4 in)	Aluminum	3.4 kg 7 1/2 lb	1.6 T (16,000 gauss)	114 mm 4 1/2 in	98 mm 3 3/4 in	3.7 kg 8 1/4 lb
2470	25 mm 1 in	16Ω	50 W	117 dB SPL		500 Hz - 12 kHz	500 Hz	44 mm (1 3/4 in)	Aluminum	4.5 kg 10 lb	1.7 T (17,000 gauss)	146 mm 5 3/4 in	98 mm 3 3/4 in	5 kg 11 lb
2482	51 mm 2 in	16Ω	120 W	118 dB SPL		300 Hz - 6 kHz	300 Hz	102 mm 4 in	Aluminum	10.8 kg 23 3/4 lb	2.05 T (20,500 gauss)	178 mm 7 in	136 mm 5 1/4 in	11.3 kg 24 3/4 lb

1. Measured sensitivity of the 2402 represents the SPL achieved with an input signal swept from 4 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 16Ω) swept from the lowest recommended crossover frequency to 2.5 kHz. See the specifications on page 00 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.

**Dividing Networks<sup>1</sup>**

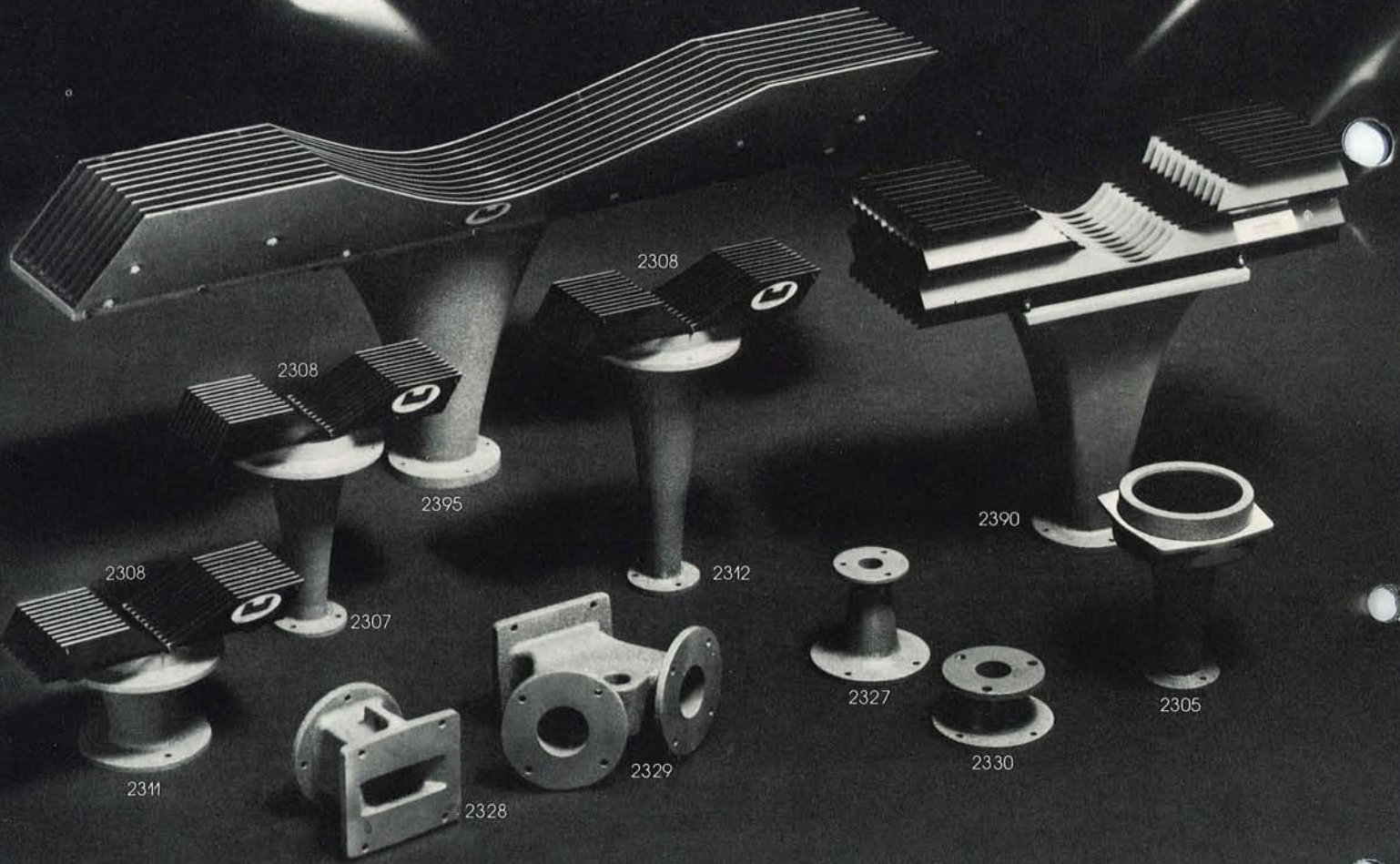
	Crossover Frequency	Power Capacity (Continuous Program)	Impedance		High Frequency Attenuation
			Low Frequency	High Frequency	
3105 <sup>2</sup>	7 kHz	50 W	12 - 16Ω	12 - 16Ω	Continuously variable
3106 <sup>3</sup>	8 kHz	50 W	12 - 16Ω	12 - 16Ω	Continuously variable
3110	800 Hz	100 W	12 - 16Ω	12 - 16Ω	6 - 8 - 10 dB, switch
3115	500 Hz	100 W	12 - 16Ω	12 - 16Ω	6 - 8 - 10 dB, switch
3120	1.2 kHz	75 W	8 - 12Ω	12 - 16Ω	0 - 3 - 6 dB, switch
3125	1.2 kHz	100 W	For Model 2150 Only		Fixed
3152	500 Hz	250 W	12 - 16Ω	12 - 16Ω	0 - 2 - 4 - 6 - 8 dB, strap
3182	800 Hz	250 W	12 - 16Ω	12 - 16Ω	0 - 2 - 4 - 6 - 8 dB, strap

1. General application networks (models 3105, 3106, 3115, 3120 and 3125) mount in a 108 x 140 mm (4 1/4 x 5 1/2 in) cutout. High power networks (models 3152 and 3182) are usually mounted

outside the enclosure and require an area 210 mm x 192 mm (8 1/4 in x 7 1/2 in) for mounting.

2. The 3105 is optimized for a 2402 or 2405 installed in a system with a 2440 compression driver.  
3. The 3106 is optimized for the 2402 or 2405 when used with a 2410 or 2420 compression driver.







## 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).

JBL exponential horns are rigid castings that function without adding resonances. The lenses shape the emerging wavefront by causing energy at the edges of the wave to travel further, because of the physical barriers within each lens, than energy toward the center of the wave.

### 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 (4 1/8 in).

### 2328 Horn Throat

Required to mount a 50-mm (2-in) JBL driver on the 2350, 2355 or 2397 horn. Length: 98 mm (3 7/8 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 (7 1/2 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 (2 3/8 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. The 2356, largest of the group, utilizes non-metallic composite construction to eliminate resonance while minimizing weight. The others are cast aluminum with thick wall sections to prevent flexing, and are coated with a heavy layer of damping material to guard against coloration or ringing. All are suitable for outdoor use.

### 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.

Type	Dispersion Pattern (Horizontal x Vertical)	Crossover Frequency	Sensitivity <sup>2</sup>		Entry Diameter Or Throat Required <sup>3</sup>	Dimensions (Height x Width x Depth)	Baffle Cutout Diameter	Net Weight	
			1 W, 1 m (3.3 ft)	1 mW, 30 ft (9.1 m)					
2305	Perforated Plate	90° conical	1.2 kHz	109 dB SPL	60 dB SPL	25 mm 1 in	146 mm (5 7/8 in) diameter x 197 mm (7 3/4 in) length	133 mm 5 1/4 in	1.4 kg 3 1/8 lb
2308 <sup>1</sup>	Slant Plate	80° x 45°					156 mm x 254 mm x 63 mm 6 1/8 in x 10 in x 2 1/2 in		0.5 kg 1 lb
2307	Exponential		1.2 kHz	108 dB SPL	59 dB SPL	25 mm 1 in	156 mm (6 1/8 in) diameter x 216 mm (8 1/2 in) length	108 mm 4 1/4 in	1.1 kg 2 1/2 lb
2311	Exponential		1.2 kHz	108 dB SPL	59 dB SPL	51 mm 2 in	156 mm (6 1/8 in) diameter x 117 mm (4 5/8 in) length	108 mm 4 1/4 in	0.9 kg 2.0 lb
2312	Exponential		800 Hz	108 dB SPL	59 dB SPL	25 mm 1 in	156 mm (6 1/8 in) diameter x 293 mm (11 1/2 in) length	108 mm 4 1/4 in	1 kg 2 1/4 lb
2390	Folded Plate	100° x 45°	800 Hz	107 dB SPL	58 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 7 1/2 in x 10 1/2 in x 12 in			
Lens						178 mm x 505 mm x 118 mm 7 in x 19 3/4 in x 4 3/4 in			
2395	Slant Plate	140° x 45°	800 Hz <sup>4</sup>	108.5 dB SPL	59.5 dB SPL	51 mm 2 in	381 mm x 914 mm x 476 mm 15 in x 36 in x 18 3/4 in	Free standing brackets supplied	11.6 kg 25 1/2 lb
2340	Radial right angle	80° x 60°	1.2 kHz	108 dB SPL	59 dB SPL	25 mm 1 in	206 mm x 213 mm x 213 mm 8 1/8 in x 8 3/8 in x 8 3/8 in		2 kg 4 1/2 lb
2345	Radial	90° x 40°	800 Hz	111 dB SPL	62 dB SPL	25 mm 1 in	171 mm x 568 mm x 391 mm 6 3/4 in x 22 3/8 in x 15 3/8 in		6.6 kg 14 1/2 lb
2350	Radial	90° x 40°	500 Hz	111 dB SPL	62 dB SPL	2328 or 2329	203 mm x 803 mm x 508 mm 8 in x 31 3/8 in x 20 in		11.6 kg 25 1/2 lb
2355	Radial	60° x 40°	500 Hz	114 dB SPL	65 dB SPL	2328 or 2329	203 mm x 613 mm x 508 mm 8 in x 24 1/8 in x 20 in		7.3 kg 16 lb
2356	Radial	40° x 20°	300 Hz	119 dB SPL	70 dB SPL	51 mm 2 in	419 mm x 838 mm x 1238 mm 16 1/2 in x 33 in x 48 3/4 in		11.2 kg 24 1/2 lb
2397	Diffraction	140° x 60°	800 Hz	108 dB SPL	59 dB SPL	2328 or 2329	95 mm x 660 mm x 340 mm 3 3/4 in x 26 in x 13 3/8 in		4.4 kg 9 1/2 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 2395 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.





5233 / 5234



6008



6011



6021



6233



**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-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 blank card can also be used to convert 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 (1 7/8 in x 19 in x 7 5/8 in deep).

**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- $\Omega$  loads. The 6007, 6011 and 6021 have full-isolation output transformers which provide rated power to 8- $\Omega$ , 16- $\Omega$  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 (12 7/8 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 (5 3/4 in) high and mount in three EIA standard rack spaces.

**6233 Dual Channel**

The 6233 is designed for applications requiring powerful, distortion-free performance. Use of a unique switching power supply results in a unit

weighing only 16 kg (35 lb), much less than currently available conventional amplifiers of similar power output. The two channels can be bridged, combining the power output of both channels for use as a single-channel amplifier. Each channel of the 6233 is equipped with a series of indicator lights. The top light provides a true indication of the clipping threshold; each successive light indicates an output level 6 dB (1/4 power) less than the light above it. The standard input impedance of 20 k $\Omega$  can be converted to balanced line bridging or matching by installing an accessory 5195 matching/bridging transformer.

The 6233 has active load line protection, operates safely in ambient temperatures in excess of 50°C (122°F) and is fully protected against a short circuit or excessive temperature rise. Either channel can enter the protect mode without affecting the other. Modular construction allows replacement of an entire channel in less than 15 minutes. Front panel finish is dark gray semi-gloss baked enamel; the unit measures 133 mm x 483 mm x 465 mm deep (5 1/4 in x 19 in x 18 5/8 in deep) and mounts in three EIA standard rack spaces.

Crossover Cards for the 5233 and 5234

Model	Use
52-5120 <sup>1</sup>	Blank
52-5121	250 Hz
52-5122	500 Hz
52-5123	800 Hz
52-5124	1.2 kHz
52-5125	5 kHz
52-5127	7 kHz for use with the 2405 ultra-high frequency driver
52-5140	For use with the 4343 Studio Monitor

1. The blank card is etched with a circuit requiring installation of five identical resistors and five identical capacitors to

construct 12-dB per octave crossovers for other frequencies. Specific resistor and capacitor values are given in the technical manual supplied with the 5233 and 5234.

**Power Amplifiers**

	Input Sensitivity <sup>1</sup>	Power Output <sup>2</sup> (Continuous Sine Wave) Per Channel		Total Harmonic Distortion <sup>3</sup>	Intermodulation Distortion			Signal/Noise Ratio (rated output)	Transformer Outputs <sup>4</sup>	Direct Output	Net Weight
		Bridged			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 $\Omega$ , 16 $\Omega$ or 70.7 V	4 $\Omega$ 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 $\Omega$ , 16 $\Omega$ or 70.7 V	4 $\Omega$ 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 $\Omega$ , 16 $\Omega$ or 70.7 V	4 $\Omega$ minimum	6021, 21 kg (47 lb) 6022, 16 kg (35 lb)
6233	0.77 V	300 W into 4 $\Omega$ 200 W into 8 $\Omega$	700 W into 8 $\Omega$ 400 W into 16 $\Omega$	Less than 0.05%	Less than 0.05%	Less than 0.05%	Less than 0.05%	Better than 100 dB	—	4 $\Omega$ minimum <sup>5</sup>	6233, 15.7 kg (34 1/2 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- $\Omega$  load.  
 3. Quoted at rated output into a 4- $\Omega$  load.

4. Applicable to 6007, 6011, 6021 only.  
 5. 8  $\Omega$  minimum in bridged configuration.





6152



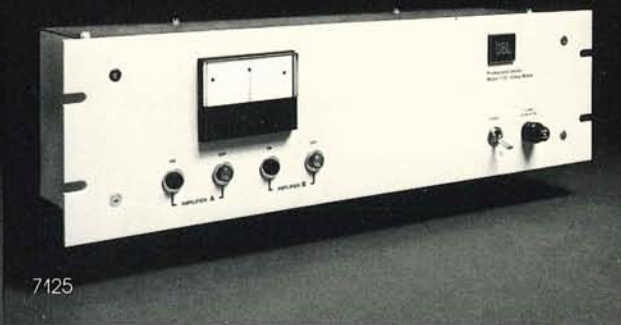
5306



5308



5600-2B



7125

**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.

**5306 Mixer/Preamplifier**

The 5306 has six microphone and two program channels. An indicator light for each microphone channel flashes just prior to input overload. Wide dynamic range results from feedback-type level controls in the microphone and master preamp circuits.

Channels 1 through 6 properly load 50- $\Omega$  to 600- $\Omega$  microphones. Microphone input transformers and an output transformer are included. Program channel 1 impedance is 50 k $\Omega$  unbalanced and is convertible to 10 k $\Omega$  balanced bridging by inserting a JBL 5196 transformer. Program channel 1 will accept a 5192 magnetic phono preamp module. A separate monitor circuit having its own gain control is provided.

**5308 Expander**

The 5308 adds eight microphone channels to the 5306 Mixer/Preamplifier, providing a total capacity of 14 microphone inputs. Each channel of the 5308 is identical to those of the 5306. The expander mounts in two rack spaces. Panel finish is dark gray non-glare baked enamel. Dimensions are 89 mm x 483 mm x 229 mm deep (3½ in x 19 in x 9 in deep) and net weight is 4.8 kg (10½ lb).

**5600-2B Mixer Preamplifier**

The 5600-2B has four microphone and two program channels. Two additional microphone channels can be added by installing a 5190B expander module. All channels will accept an unbalanced high impedance input. Each microphone channel may be converted to balanced low impedance operation by installing 5901 transformer, or to a 50-k $\Omega$  unbalanced program input by installing a 5904 T-pad. The two program channels will each accept a 5195 transformer to provide a 15-k $\Omega$  bridging or 600- $\Omega$  matching balanced input. The socket will also accommodate a 5191 magnetic phono/tapehead preamp. A cue control allows audition through the headphone jack. For 120 V AC, 50/60 Hz operation.

**7125 Safety Matrix**

The 7125 combines the 70-V outputs of two equal amplifiers. In the event either amplifier fails, the entire load is transferred to the surviving amplifier, limiting loss to 3 dB. Two relay contacts are provided for adding remote alarm signals. Front panel finish is light gray non-glare baked enamel; dimensions are 133 mm x 483 mm x 146 mm deep (5½ in x 19 in x 5¾ in deep); the unit mounts in three EIA standard rack spaces and net weight is 9.3 kg (20½ lb). For operation on 120 V AC, 50/60 Hz.

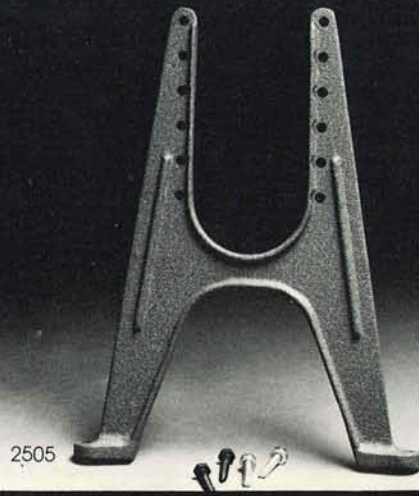
	Gain	Maximum Output Level	Frequency Response	Total Harmonic Distortion	Intermodulation Distortion	Equivalent Input Noise <sup>1</sup>	Panel Finish	Dimensions	Mounting	Net Weight
5152	Microphone 57 dB high impedance 71 dB low impedance Line 26 dB Phono 53 dB at 1 kHz	+24 dBm balanced +18 dBm unbalanced	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 9¾ in deep	1 EIA standard rack space	3.6 kg 8 lb
5306	Microphone 86 dBm Program 40 dB	+24 dBm	20 Hz - 20 kHz, ±1 dB	Less than 0.2% at +18 dBm	Less than 0.2% at +18 dBm	-125 dBm	Semi-gloss baked enamel, dark gray	133 mm x 483 mm x 229 mm deep 5¼ in x 19 in x 9 in deep	3 EIA standard rack spaces	5.4 kg 12 lb
5600-2B	Microphone 57 dB high impedance 83 dB with 5901 Program 26 dB, 30 dB with 5195 bridging 44 dB with 5195 matching	+18 dBm	20 Hz - 20 kHz, ±1 dB	Less than 0.25% at +18 dBm	Less than 0.5%	-122 dBm	Semi-gloss baked enamel, dark gray	133 mm x 483 mm x 254 mm deep 5¼ in x 19 in x 10 in deep	3 EIA standard rack spaces	5.6 kg 12½ lb

<sup>1</sup> 20 kHz bandwidth.





MA15



2505



5190B



5191



5192



5195



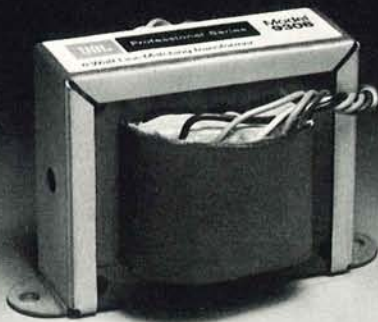
5196



5901



5904



9308



9375



2504



**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 cutout. 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 K151 460-mm (18-in) loudspeaker, due to that unit's additional mass. The MA15, however, cannot be used to mount a K145 380-mm (15-in) loudspeaker since the clamps will not fit the unit's frame.

**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 (13<sup>1</sup>/<sub>16</sub> 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 (9<sup>1</sup>/<sub>4</sub> in) apart. The 2505 is furnished standard with the 2395 horn/lens.

**5190B Microphone Preamp Expander Module**

The 5190B adds two high impedance microphone channels to the 5600-2B mixer/preamplifier and will accept 5901 accessory transformers for low impedance microphones. Controls appear through labeled holes concealed behind a removable cover on the front panel of the 5600-2B.

**5191 Magnetic Phono/Tapehead Preamp**

Converts either program input of a 5600-2B to RIAA phono or high impedance, NAB-equalized, 19 cm per second (7<sup>1</sup>/<sub>2</sub> in per second) tapehead. The change from phono to tapehead equalization is accomplished by moving an internal jumper wire in the 5191.

**5192 Magnetic Phono Preamp**

Provides RIAA equalization for program channel 1 of the 5306 mixer/preamplifier.

**5195 Matching/Bridging Transformer**

Provides balanced line inputs (15-k $\Omega$  bridging or 600- $\Omega$  matching) for the 6000 series power amplifiers and the 5600-2B mixer/preamplifier, 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- $\Omega$  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.

**5196 Bridging Transformer**

Converts either program channel of the 5306 from 50-k $\Omega$  unbalanced to 10-k $\Omega$  balanced operation. 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.

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.

**5901 Microphone Input Transformer**

The 5901 converts a microphone channel of the 5600-2B 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.

**5904 T-Pad**

Attenuates the signal and converts any microphone input of a 5600-2B mixer/preamplifier to a program input having the same sensitivity as an original program input.

**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- $\Omega$ , 8- $\Omega$  or 16- $\Omega$  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- $\Omega$ , 8- $\Omega$ , 16- $\Omega$  and 32- $\Omega$  loads in any combination. As an example, a 9375 may be used to match two 16- $\Omega$  high frequency drivers to a 16- $\Omega$  network. THD is less than 1%, 30 Hz to 15 kHz, in any configuration.





James B. Lansing Sound, Inc.,  
8500 Balboa Boulevard,  
Northridge, California 91329 U.S.A.