



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 RMS 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.

### **Professional Products Warranty**

Every JBL Professional Series transducer is warranted against defects in material and workmanship for a period of five years. All other JBL professional products are warranted for a period of two years. JBL will replace defective parts and make necessary repairs under this warranty if our examination reveals evidence of faulty workmanship or material. The warranty does not cover damage caused by misuse, accident or neglect. JBL retains the exclusive right to make such determination on the basis of factory inspection.

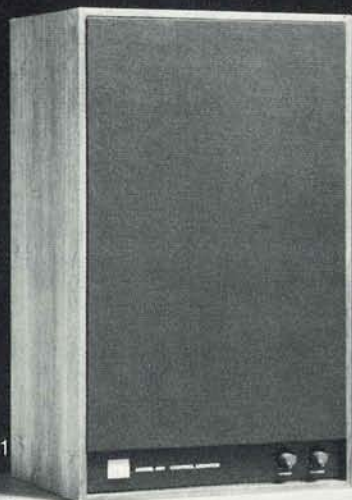
Moreover, because we believe that a fine loudspeaker, like a fine musical instrument, should never wear out, we will repair any JBL transducer free of charge without time limitation if factory inspection discloses evidence of an original manufacturing defect.

If it is impractical to return the product to the factory, please write JBL describing the difficulty or malfunction. JBL may, at its option, establish alternative repair procedures or furnish replacement parts as appropriate. Products returned to the factory must be shipped prepaid to JBL Customer Service, 11340 Sherman Way, Sun Valley, California 91352.

The warranty on JBL products shall remain valid only if repairs are performed by JBL or under its authorized procedures, and provided that the serial number on the unit has not been defaced or removed.

JBL Professional Products are not intended for household use.

4311



4315



JBL MODEL 4350 STUDIO MONITOR

4350



## Studio Monitor Loudspeaker Systems

### 4311 Control Monitor, 3-way

A compact loudspeaker system designed for control rooms and other applications where space is limited, the 4311 utilizes 12-inch low frequency, 5-inch midrange and 1.4-inch 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.



4311 Components

**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 where the high SPL of a larger monitor is not required or where space is limited. The system consists of 12-inch low frequency, 8-inch midrange, 5-inch 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 15-inch low frequency loudspeakers, a 12-inch midrange loudspeaker, high frequency 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.



4350 Components

	Frequency Response ( $\pm 3$ dB)	Power Capacity (Steady State)	Nominal Impedance	Sensitivity <sup>1</sup>		Crossover Frequencies <sup>2</sup>	Enclosure Volume	Exterior Dimensions (Height x Width x Depth)	Net Weight
				1mW, 30 ft. (9.1 m)	1 W, 1m (3.3 ft.)				
4311	45-15k Hz	40 Watts	8 ohms	42 dB SPL	91 dB SPL	1500 and 6000 Hz	1.5 cu. ft. 42.5 liters	23 $\frac{1}{2}$ " x 14 $\frac{1}{4}$ " x 11 $\frac{1}{2}$ " 59.7 x 36.2 x 29.8 cm	42 lbs 19 kg
4315	35-20k Hz	60 Watts	8 ohms	40 dB SPL	89 dB SPL	400, 2000 and 8000 Hz	3.3 cu. ft. 93 liters	33 $\frac{3}{4}$ " x 20 $\frac{1}{2}$ " x 12 $\frac{1}{8}$ " 85.4 x 52.1 x 32.7 cm	95 lbs 43 kg
4350	30-20k Hz	200 Watts at 4 $\Omega$ below 250 Hz. 100 Watts at 8 $\Omega$ above 250 Hz	4 ohms below 250 Hz. 8 ohms above 250 Hz	46.5 dB SPL	95.5 dB SPL	250, 1100 and 9000 Hz	9.5 cu. ft. 269 liters	35" x 47 $\frac{3}{8}$ " x 20" 88.9 x 121.0 x 50.8 cm	243 lbs 110 kg

1. Sensitivity measured with an input averaged from 500 to 2500 Hz, with controls set for flattest response.

2. The lowest crossover frequency specified for the 4350 is the recommended crossover frequency for bi-amplification.



4333A

4343

4331A

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

A refinement of the classic JBL studio monitor, the 4331A utilizes a recently developed 15-inch 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.



4331A 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 15-inch low frequency and 10-inch 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 1-inch 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.

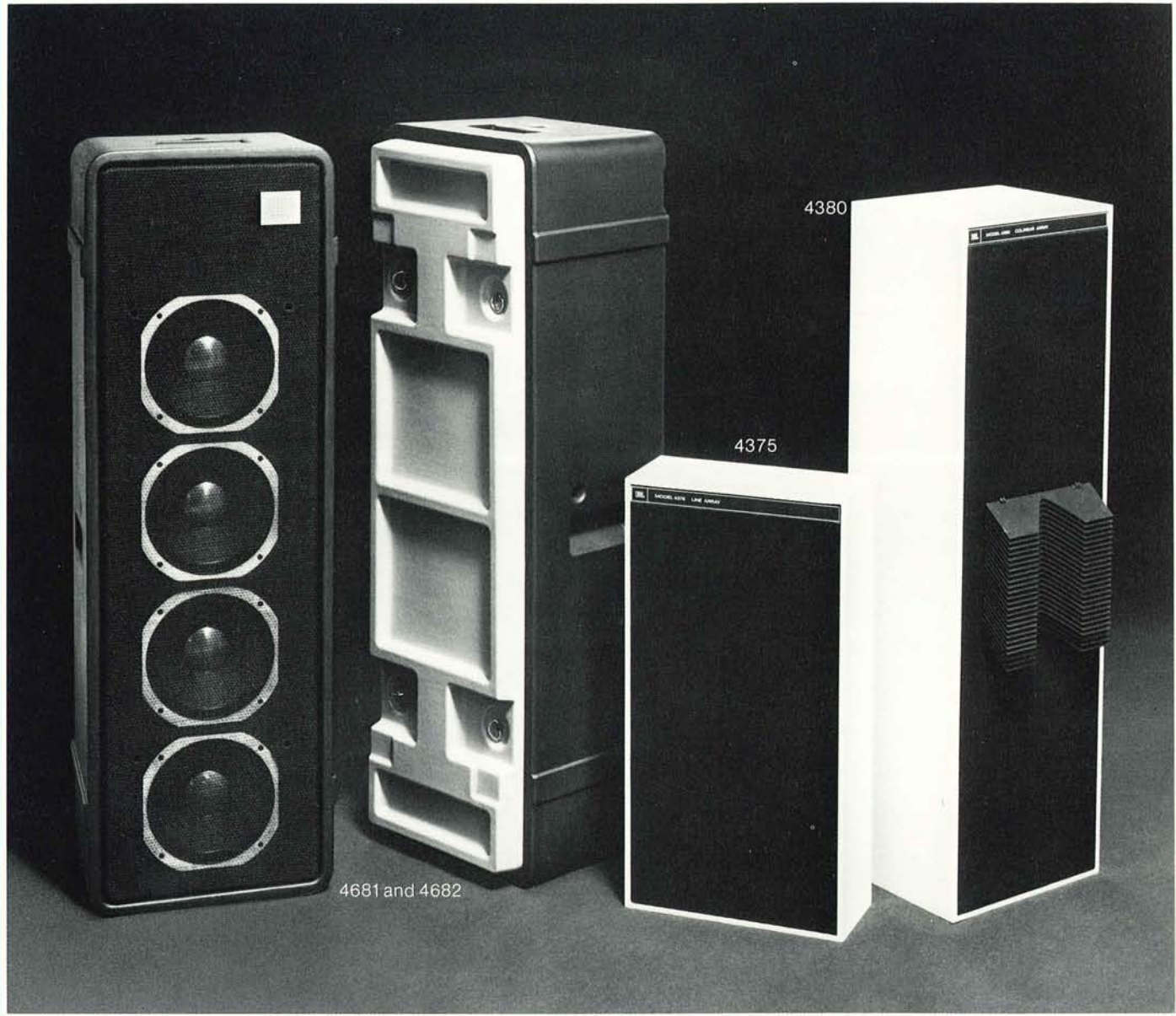


4343 Components

	Frequency Response ( $\pm 3$ dB)	Power Capacity (Steady State)	Nominal Impedance	Sensitivity <sup>1</sup>		Crossover Frequencies <sup>2</sup>	Enclosure Volume	Exterior Dimensions (Height x Width x Depth)	Net Weight
				1 mW, 30 ft. (9.1 m)	1 W, 1m (3.3 ft.)				
4331A	35-15k Hz	75 Watts	8 ohms	44 dB SPL	93 dB SPL	800 Hz	5.5 cu. ft. 156 liters	30 $\frac{3}{8}$ " x 24 $\frac{3}{8}$ " x 20 $\frac{1}{2}$ " 77.8 x 61.9 x 51.4 cm	125 lbs 57 kg
4333A	35-20k Hz	75 Watts	8 ohms	44 dB SPL	93 dB SPL	800 and 8500 Hz	5.5 cu. ft. 156 liters	30 $\frac{3}{8}$ " x 24 $\frac{3}{8}$ " x 20 $\frac{1}{2}$ " 77.8 x 61.9 x 51.4 cm	129 lbs 59 kg
4343	35-20k Hz	75 Watts	8 ohms	44 dB SPL	93 dB SPL	300, 1250 and 9500 Hz	5.6 cu. ft. 159 liters	41 $\frac{3}{8}$ " x 25" x 17 $\frac{1}{8}$ " 105.1 x 63.5 x 43.5 cm	175 lbs 79 kg

1. Sensitivity measured with an input averaged from 500 to 2500 Hz, with controls set for flattest response.

2. 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.



4681 and 4682

4375

4380

## Special Purpose Loudspeaker Systems

**4375 Line Array** An efficient, high powered speech range public address system utilizing four rugged 5-inch 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.

**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 5-inch and four 8-inch drivers are arranged in colinear configuration with overlapping wavefronts; a slant-plate acoustic lens over the 5-inch drivers provides additional high frequency dispersion. Available in textured gray with charcoal black fabric grille.

**4681 and 4682 Line Arrays** Rugged, powerful full range arrays for sound reinforcement or stage foldback, the 4681 and 4682 feature a molded enclosure capable of sustaining the rigors of transport without additional crating. Handles molded into both ends and sides include reinforced rigging holes for suspending the system. The 4681 utilizes four K110 musical instrument loudspeakers.

The 4682 contains the same extended range 10-inch loudspeakers augmented by a 2902 high frequency power pack. The power pack consists of two 2402 ring radiators with a crossover network and is available separately for user installation in a 4681. An optional cover, which permits stacking enclosures in transit, can be installed or removed with the grille in place. The black enclosure is equipped with a black nylon fabric grille; the optional cover is red-orange.

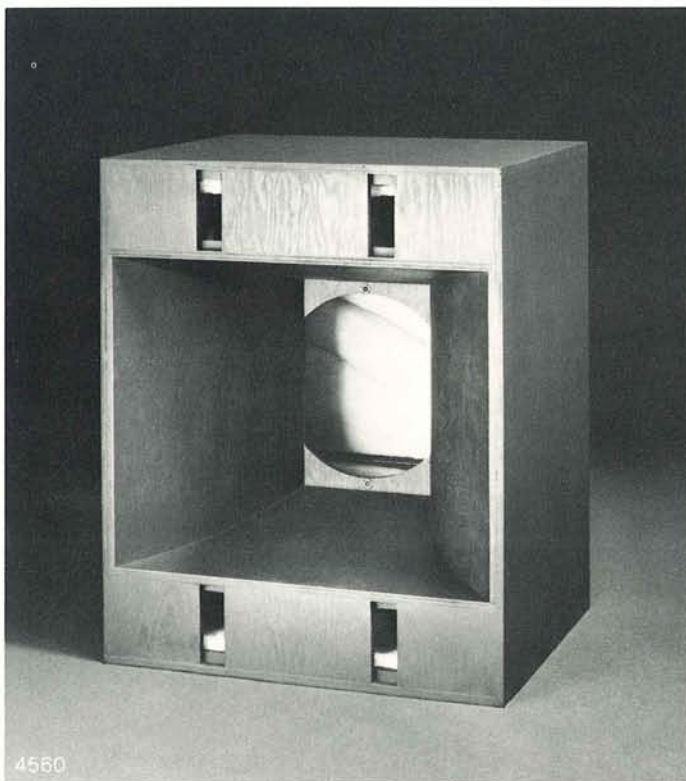
	Frequency Range	Dispersion (Horizontal xVertical)	Nominal Impedance	Power Capacity (Continuous Program)	Sensitivity <sup>1</sup>		Components	Crossover Frequency	Enclosure Volume	Exterior Dimensions <sup>2</sup> (Height xWidth xDepth)	Net Weight <sup>3</sup>
					1mW, 30 ft. (9.1 m)	1W, 1 m (3.3 ft.)					
4375	150-15k Hz	120° x 30°	8 ohms	100 Watts	51 dB SPL	100 dB SPL	(4) 2105.5" (13 cm)		1.2 cu. ft. 34.0 liters	30" x 15½" x 6½" 76.2 x 40.0 x 16.5 cm	39 lbs 18 kg
4380	55-15k Hz	90° x 20°	8 ohms	100 Watts	50 dB SPL	99 dB SPL	(4) 2110, 8" (20 cm) (2) 2105, 5" (13 cm)	1500 Hz	3.3 cu. ft. 93.6 liters	47¾" x 14¼" x 11½" 121.3 x 36.2 x 28.9 cm	81 lbs 37 kg
4681	55-8k Hz	60° x 40°	8 ohms	600 Watts	56 dB SPL	105 dB SPL	(4) K110, 10" (25 cm)		5.2 cu. ft. 147.2 liters	52" x 17¼" x 13½" 132.1 x 43.8 x 34.3 cm	79 lbs 36 kg
4682	55-15k Hz	60° x 40°	8 ohms	600 Watts	56 dB SPL	105 dB SPL	(4) K110, 10" (25 cm) (1) 2902 HF power pack	3000 Hz	5.2 cu. ft. 147.2 liters	52" x 17¼" x 13½" 132.1 x 43.8 x 34.3 cm	88 lbs 40 kg

1. Sensitivity measured with an input averaged from 500 to 2500 Hz.

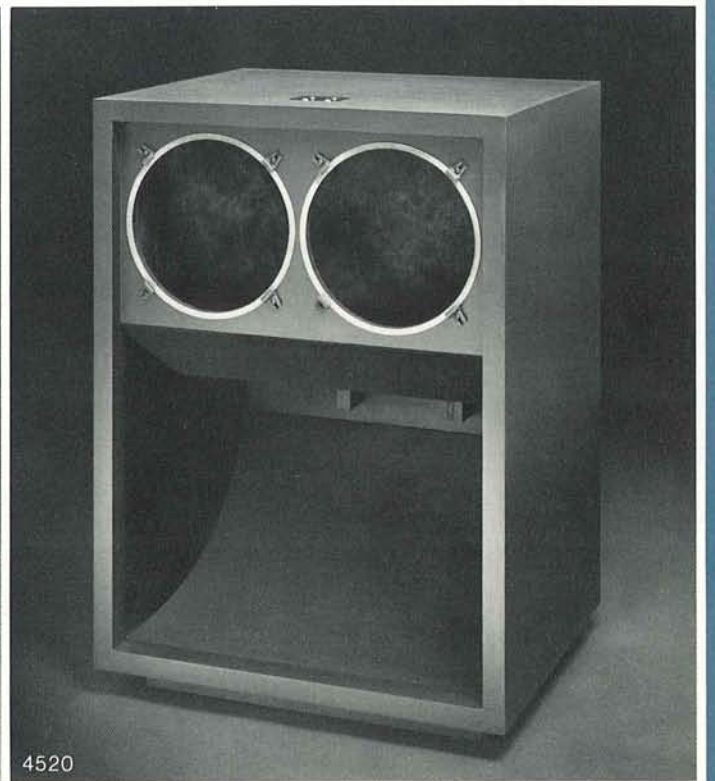
2. The acoustic lens attached to the grille of the 4380 extends an additional 2½" (6.3 cm). Depth of the 4681 or 4682 with the optional cover in place is 15½" (39 cm).

3. Weight of the optional cover for the 4681 or 4682 is 4 lbs. (2 kg).

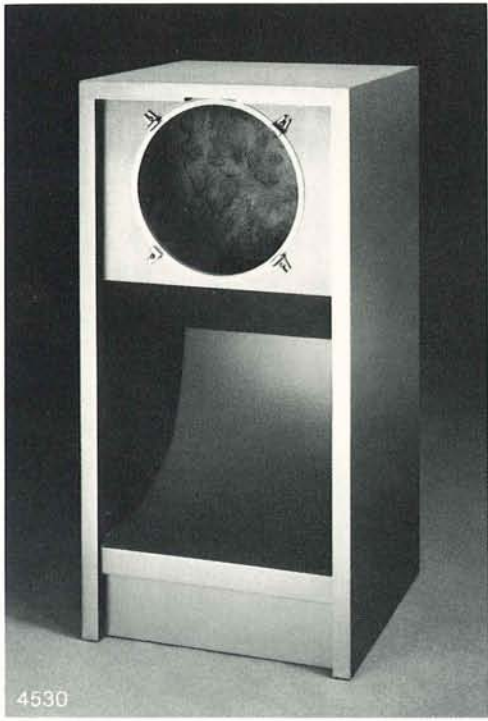




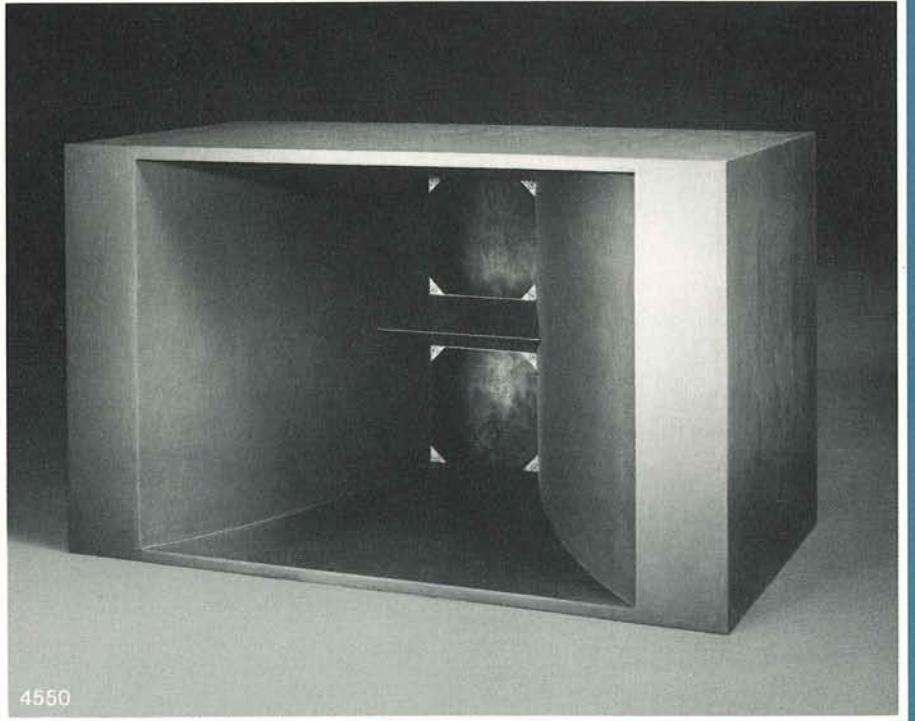
4550



4520



4530



4560

## 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 panel accepts 15-inch drivers and is 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.

### 4520 Rear Loading Dual Driver

A short throw, 13-foot folded horn, the 4520 provides maximum loading to 42 Hz for applications which require high level sound projection up to 75 feet. 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 75 feet) 7-foot 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

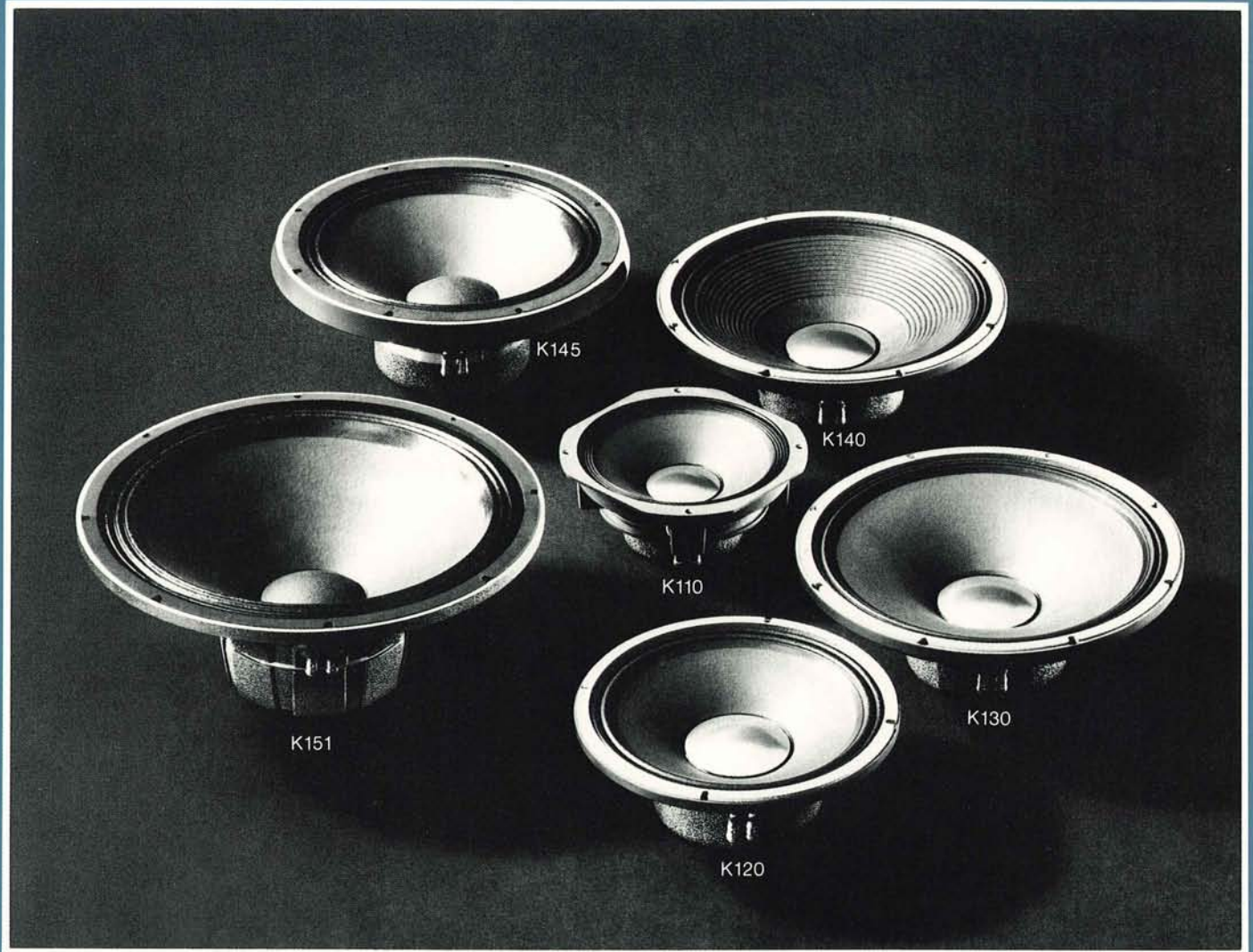
The 4550 is a long throw directional horn for use below 800 Hz. The horn and sealed rear chamber increase driver sensitivity by 6 dB above 100 Hz while providing usable response to 50 Hz. The dispersion pattern at 800 Hz is 75° horizontal and 30° vertical.

### 4560 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.

	Recommended Driver	Lowest Usable Frequency	Exterior Dimensions (Height x Width x Depth)	Net Weight (Without Drivers)
4520	2205	30 Hz	50¼" x 35¾" x 29¾" 127.6 x 90.8 x 75.6 cm	215 lbs 98 kg
4530	2205	50 Hz	47¾" x 23¾" x 23¾" 121.3 x 60.3 x 60.3 cm	120 lbs 54 kg
4550	2220, 2205 <sup>1</sup>	50 Hz	60" x 36" x 32½" 152.4 x 91.4 x 82.5 cm	195 lbs 88 kg
4560	2220, 2205 <sup>1</sup>	60 Hz	36" x 30" x 23½" 91.4 x 76.2 x 60.6 cm	91 lbs 41 kg

1. 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

K110

K151

K130

K120

## Musical Instrument Loudspeakers

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 only be characterized by the initials JBL.

## High Frequency Power Packs

**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 crossover 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 Watts RMS at 4, 8 or 16 ohms. Crossover frequency is 3000 Hz, the driver/horn/lens assembly is 5¾" (14.6 cm) at its maximum diameter and its total length is 11½" (29.2 cm). Net weight of the 2901 is 15 lbs. (6.8 kg).

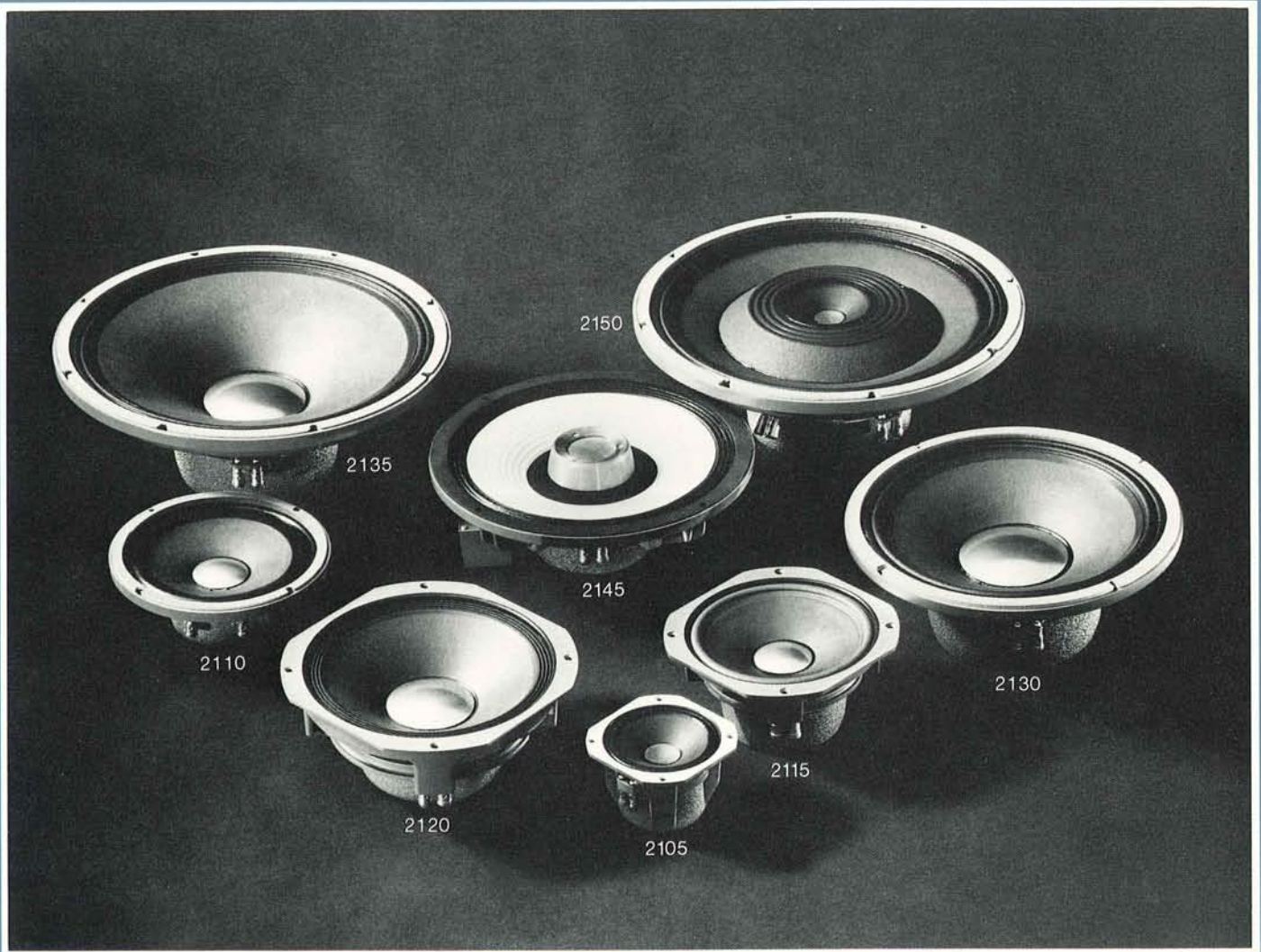
**2902 Reinforcement** The 2902 can be installed to extend the high frequency response of a 4681 line array and is included in the 4682 extra wide band array. Operating through a range of more than two octaves, the 2902 extends system response to 15,000 Hz. With the 2902, voice and acoustic instruments sound exceptionally realistic—their harmonics are recreated precisely and with sharp definition. The power pack consists of a pair of 2402 ring radiators and a 3000-Hz crossover network having the required 18-dB/octave filter slope for driver protection, and a continuously variable level control accessible through the grille of a 4681 or 4682. Net weight of the 2902 is 9 lbs. (4.1 kg).



Model	Primary Application	Nominal Diameter	Nominal Impedance <sup>1</sup>	Power Capacity		Sensitivity <sup>2</sup>		Frequency Range	Nominal Free Air Resonance	Voice Coil Diameter	Voice Coil Material	Magnetic Assembly Weight	Flux Density (Gauss)	Depth	Net Weight
				Continuous RMS	Continuous Program	1 mW, 30 ft (9.1 m)	1 W, 1m (3.3 ft.)								
K110	Lead or rhythm guitar, column, organ, piano, voice	10 in 25 cm	8 ohms	75 Watts	150 Watts	49 dB SPL	98 dB SPL	60-8k Hz	65 Hz	3 in 7.6 cm	Aluminum	6½ lbs 3.0 kg	10,200	4¾" 11.1 cm	8¼ lbs 3.7 kg
K120	Lead or rhythm guitar, electric piano, organ, vocals	12 in 30 cm	8 ohms	100 Watts	200 Watts	52 dB SPL	101 dB SPL	50-6k Hz	75 Hz	4 in 10.2 cm	Aluminum	12 lbs 5.4 kg	12,000	4¾" 12.1 cm	14 lbs 6.4 kg
K130	Lead or rhythm guitar, electric piano, organ, vocals	15 in 38 cm	8 ohms	125 Watts	250 Watts	54 dB SPL	103 dB SPL	50-6k Hz	40 Hz	4 in 10.2 cm	Aluminum	12 lbs 5.4 kg	12,000	5¾" 14.3 cm	15½ lbs 7.0 kg
K140	Electric bass, organ	15 in 38 cm	8 ohms	150 Watts	300 Watts	49 dB SPL	98 dB SPL	40-2.5k Hz	30 Hz	4 in 10.2 cm	Copper	12 lbs 5.4 kg	12,000	5¾" 14.3 cm	15½ lbs 7.0 kg
K145	Electric bass, organ	15 in 38 cm	8 ohms	150 Watts	300 Watts	44 dB SPL	93 dB SPL	40-2.5k Hz	45 Hz	4 in 10.2 cm	Copper	19¾ lbs 9.0 kg	9,500	6¾" 16.8 cm	25¾ lbs 11.7 kg
K151	Electric bass, organ	18 in 46 cm	8 ohms	150 Watts	300 Watts	50 dB SPL	99 dB SPL	35-2k Hz	30 Hz	4 in 10.2 cm	Copper	19¾ lbs 9.0 kg	12,000	7¾" 19.4 cm	26¼ lbs 11.9 kg

1. The nominal impedance specified is the standard configuration. All models may be ordered with a 4-ohm impedance; the K110, K120, K130, K140 and K145 are also available with an impedance of 16 ohms.

2. Sensitivity measured with an input swept from 500 to 2500 Hz.



## Special Duty Loudspeakers

**2105 5-inch 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 8-inch 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 12-inch Composite** An integrated system consisting of a 12-inch low frequency loudspeaker, separate 2-inch high frequency direct radiator and 3000 Hz 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 15-inch Composite** Ideally suited for maximum intelligibility, high level paging systems and distributed reinforcement in large areas. It consists of a 15-inch low frequency loudspeaker and a 5-inch 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.)

## Extended Range Loudspeakers

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 majority of the audio spectrum allows their use as single-driver systems; for reproduction of extreme high frequencies they 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 (Gauss)	Recommended Enclosure Volume	Depth	Net Weight
				1mW, 30 ft. (9.1 m)	1W, 1 m (3.3 ft.)									
2105	5 in. 13 cm	8 ohms	40 Watts	46.5 dB SPL	95.5 dB SPL	150-15k Hz	200 Hz	7/8 in. 2.2 cm	Copper	2 3/4 lbs 1.2 kg	16,500	0.2 cu. ft. 6 liters	3 in. 7.6 cm	3 lbs 1.4 kg
2115	8 in. 20 cm	8 or 16 ohms	40 Watts	43 dB SPL	92 dB SPL	40-15k Hz	45 Hz	2 in. 5.1 cm	Aluminum	6 1/2 lbs 3.0 kg	8,500	1-2 cu. ft. 28-56 liters	3 3/8 in. 9.8 cm	8 lbs 3.6 kg
2145	12 in. 30 cm	8 ohms	35 Watts	43 dB SPL	92 dB SPL	40-15k Hz	25 Hz	3 in. 7.6 cm	Copper	6 1/2 lbs 3.0 kg	10,000	2-3 cu. ft. 57-85 liters	4 3/8 in. 11.1 cm	9 1/2 lbs 4.3 kg
	High Frequency 2 in. 5 cm							Copper	1 1/2 lbs 0.7 kg	12,000				
2150	15 in. 38 cm	8 ohms	50 Watts	51 dB SPL	100 dB SPL	50-12k Hz	55 Hz	4 in. 10.2 cm	Copper	12 1/2 lbs 5.7 kg	11,500	6 cu. ft. 169 liters	5 1/2 in. 14.6 cm	15 1/2 lbs 7.2 kg
	High Frequency 5 in. 13 cm							Copper	2 3/4 lbs 1.2 kg	16,500				

### Extended Range Loudspeakers

2110	8 in. 20 cm	8 ohms	20 Watts	48 dB SPL	97 dB SPL	60-10k Hz	55 Hz	2 in. 5.1 cm	Aluminum	3 lbs 1.6 kg	9,000	2-3 cu. ft. 56-85 liters	3 3/8 in. 7.9 cm	4 1/2 lbs 2.0 kg
2120	10 in. 25 cm	8 ohms	60 Watts	49 dB SPL	98 dB SPL	50-8k Hz	65 Hz	3 in. 7.6 cm	Aluminum	6 1/2 lbs 3.0 kg	10,200	3-4 cu. ft. 85-113 liters	4 3/8 in. 11.1 cm	8 1/2 lbs 3.7 kg
2130	12 in. 30 cm	8 ohms	100 Watts	52 dB SPL	101 dB SPL	50-8k Hz	75 Hz	4 in. 10.2 cm	Aluminum	13 lbs 5.9 kg	12,000	3-6 cu. ft. 85-169 liters	5 in. 12.7 cm	15 lbs 6.8 kg
2135	15 in. 38 cm	8 ohms	100 Watts	54 dB SPL	103 dB SPL	40-8k Hz	40 Hz	4 in. 10.2 cm	Aluminum	13 lbs 5.9 kg	12,000	4-6 cu. ft. 113-169 liters	5 1/2 in. 14.6 cm	16 1/2 lbs 7.5 kg

1. Sensitivity measured with an input swept from 500 to 2500 Hz.



2205

2220

2231

2290

2215

2202

## 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 utilizes a 4-inch edgewound copper ribbon voice coil individually wound and assembled to a heat resistant support, and a heavy, precisely constructed magnetic structure that concentrates all the potential of a large Alnico V magnet in the voice coil gap.

### 2290 Passive Radiator

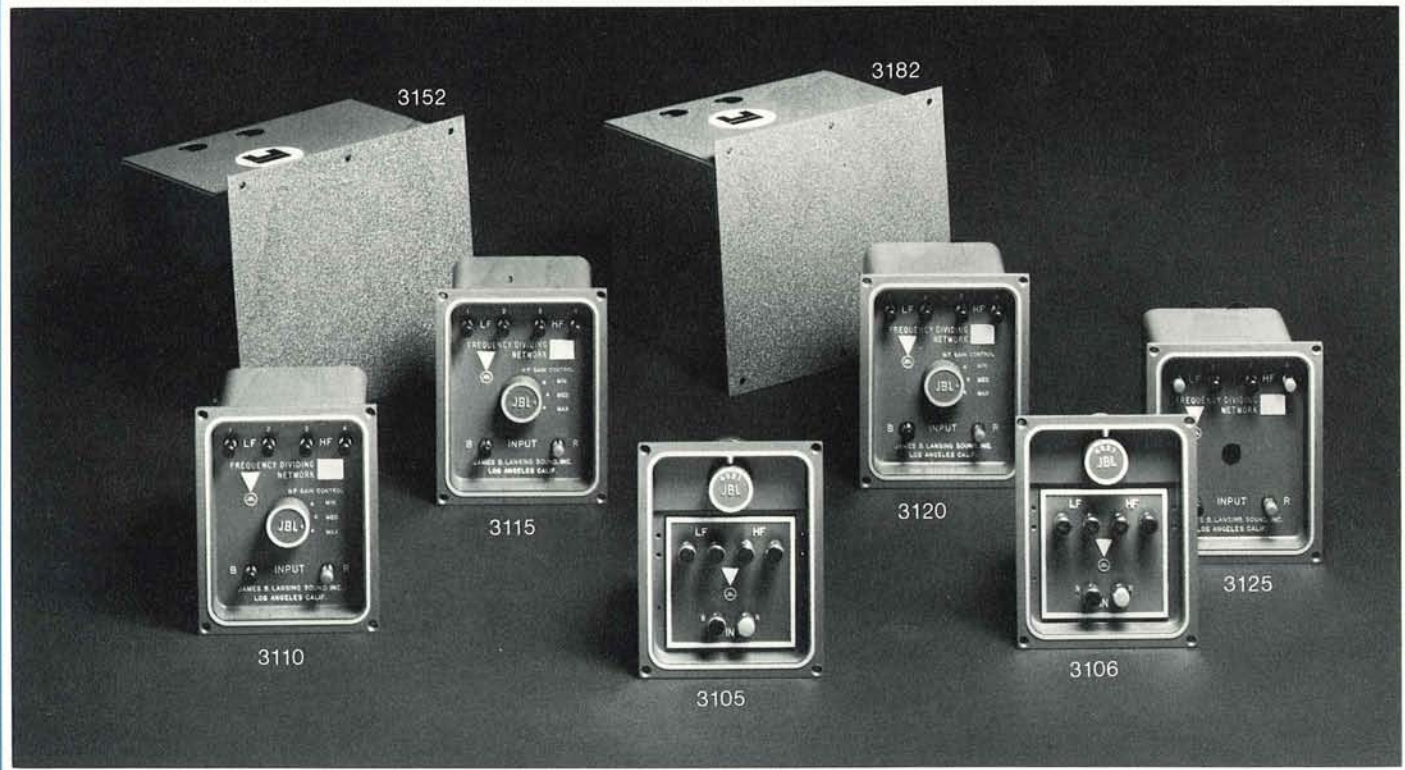
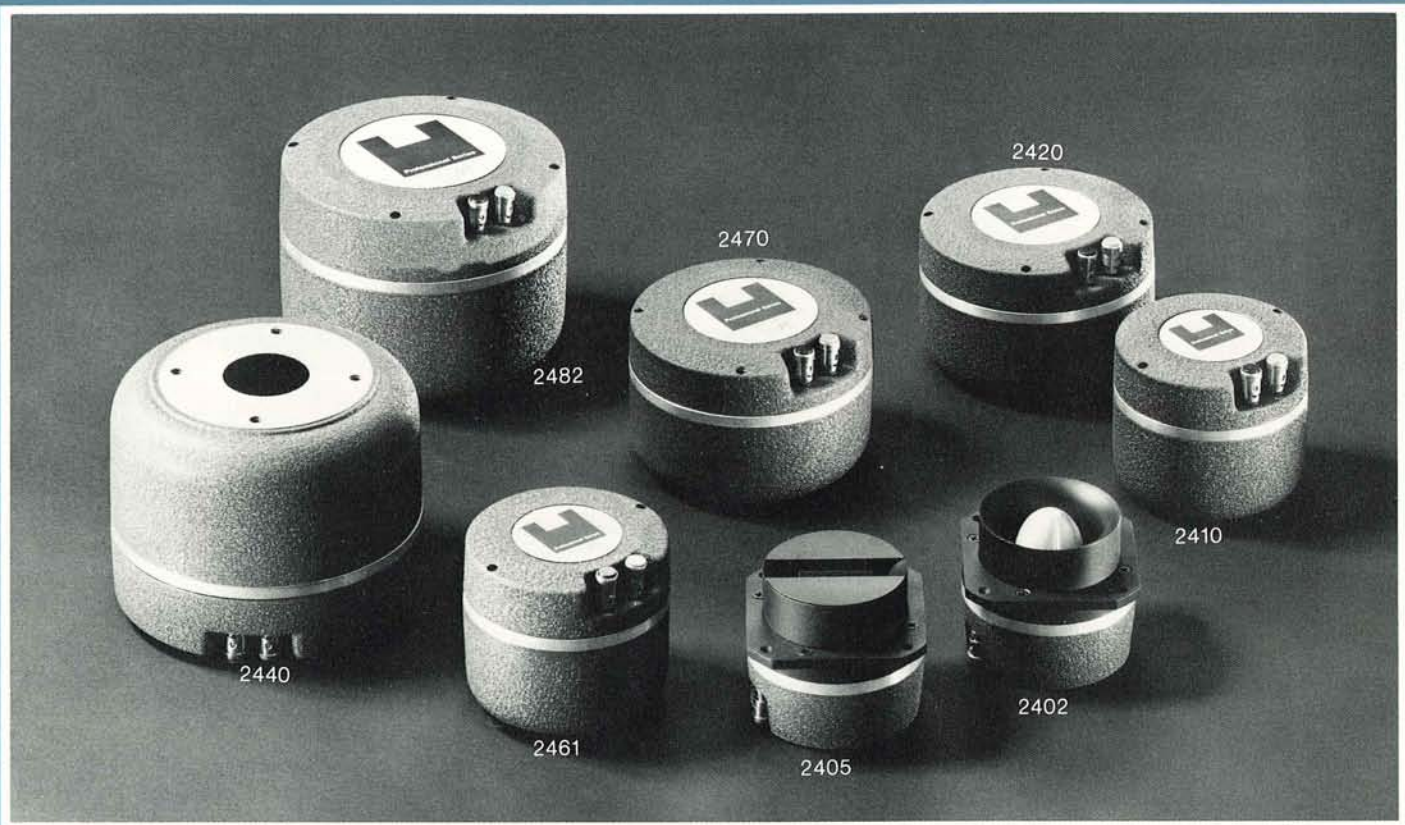
The 2290 is a 15-inch passive radiator consisting of a freely suspended cone assembly with carefully controlled mass and compliance. The 2290 is designed for use with the 2205 or 2215 in a 5- to 8-cubic foot (141 to 225 liters) closed enclosure. The passive radiator utilizes back radiation from the driver to increase bass response below 150 Hz. It functions in the same manner as a ducted port, providing greater radiating area in an enclosure of relatively small dimensions. A passive radiator is particularly recommended for wide range, low-distortion music reproduction systems. Nominal diameter is 15 inches (38 cm), depth is 3 $\frac{3}{8}$  inches (8.6 cm) and net weight is 3 $\frac{1}{2}$  lbs (1.6 kg).

	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 (Gauss)	Recommended Enclosure		Net Weight
				1mW/30 ft (9.1 m)	1W, 1 m (3.3 ft.)							Volume	Depth	
2202	12 in. 30 cm	8 ohms	100 Watts	47 dB SPL	96 dB SPL	60-4k Hz	50 Hz	4 in. 10.2 cm	Copper	13 lbs 5.9 kg	12,000	4-6 cu. ft. 113-169 liters	4 $\frac{1}{2}$ " 12.4 cm	15 lbs 6.8 kg
2205	15 in. 38 cm	8, 16 or 32 ohms	150 Watts	47 dB SPL	96 dB SPL	30-2k Hz	25 Hz	4 in. 10.2 cm	Copper	13 lbs 5.9 kg	11,500	6-8 cu. ft. 170-225 liters	5 $\frac{3}{8}$ " 14.6 cm	16 $\frac{1}{2}$ lbs 7.5 kg
2215	15 in. 38 cm	8 or 16 ohms	150 Watts	45 dB SPL	94 dB SPL	35-1.2k Hz	20 Hz	4 in. 10.2 cm	Copper	20 $\frac{1}{4}$ lbs 9.2 kg	11,000	6-8 cu. ft. 170-225 liters	5 $\frac{3}{8}$ " 14.9 cm	23 $\frac{3}{8}$ lbs 10.7 kg
2220	15 in. 38 cm	8, 16 or 32 ohms	100 Watts	52 dB SPL	101 dB SPL	40-2k Hz	37 Hz	4 in. 10.2 cm	Copper	13 lbs 5.9 kg	12,000	6-10 cu. ft. 170-281 liters	5 $\frac{3}{8}$ " 14.9 cm	17 lbs 7.7 kg
2231	15 in. 38 cm	8 ohms	100 Watts	44 dB SPL	93 dB SPL	25-2k Hz	16 Hz	4 in. 10.2 cm	Copper	13 lbs 5.9 kg	12,000	4-6 cu. ft. 113-169 liters	5 $\frac{3}{8}$ " 14.6 cm	16 $\frac{1}{2}$ lbs 7.5 kg

1. The sensitivity rating of JBL low frequency loudspeakers is based on a signal swept from 100 to 500 Hz, rather than the conventional 1000-Hz 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 1200 Hz; for the other models 800 Hz is the highest recommended crossover frequency.





## High Frequency Drivers

JBL compression drivers utilize Alnico V magnets housed in heavy assemblies and large diameter edge-wound 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 the largest 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 extreme high frequencies. 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 3 1/8" (7.9 cm).

**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 bandwidth of the driver.

**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.

## 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 auto-transformers 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.

### High Frequency Drivers

	Horn Mouth Dimensions or Throat Diameter	Nominal Impedance	Power Capacity (Continuous Program)	Sensitivity <sup>1</sup> 1mW/30 ft. (9.1 m)	1W/1m (3.3 ft.)	Frequency Range	Lowest Recommended Crossover Frequency <sup>2</sup>	Voice Coil Diameter	Voice Coil Material	Magnetic Assembly Weight	Flux Density (Gauss)	Diameter	Depth	Net Weight
2402	3 1/8" (7.9 cm) diameter	8 ohms	20 Watts	61 dB SPL	110 dB SPL	2500-15k Hz	2500 Hz	1 1/2 in 4.4 cm	Aluminum	3 1/4 lbs 1.5 kg	16,500	3 3/8" 9.8 cm	3 3/8" 8.3 cm	4 1/2 lbs 2.0 kg
2405	3 1/2 x 0 7/25 in 7.9 x 1.8 cm	16 ohms	20 Watts	56 dB SPL	105 dB SPL	6500-21.5k Hz	7000 Hz	1 1/2 in 4.4 cm	Aluminum	3 1/4 lbs 1.5 kg	16,500	3 3/8" 9.8 cm	3 3/8" 8.3 cm	4 1/2 lbs 2.0 kg
2410	1 in 2.5 cm	16 ohms	30 Watts	117 dB SPL		500-15k Hz	800 Hz	1 1/2 in 4.4 cm	Aluminum	7 1/2 lbs 3.4 kg	16,000	4 1/2" 11.4 cm	3 3/8" 9.8 cm	8 1/2 lbs 3.7 kg
2420	1 in 2.5 cm	16 ohms	30 Watts	118 dB SPL		500-20k Hz	800 Hz	1 1/2 in 4.4 cm	Aluminum	10 lbs 4.5 kg	19,000	5 1/2" 14.6 cm	3 3/8" 9.8 cm	11 lbs 5.0 kg
2440	2 in 5.1 cm	16 ohms	60 Watts	118 dB SPL		500-12k Hz	500 Hz	4 in 10.2 cm	Aluminum	23 3/4 lbs 10.8 kg	20,500	7" 17.8 cm	5 3/8" 13.6 cm	24 1/2 lbs 11.3 kg
2461	1 in 2.5 cm	16 ohms	50 Watts	117 dB SPL		500-12k Hz	500 Hz	1 1/2 in 4.4 cm	Aluminum	7 1/2 lbs 3.4 kg	16,000	4 1/2" 11.4 cm	3 3/8" 9.8 cm	8 1/2 lbs 3.7 kg
2470	1 in 2.5 cm	16 ohms	50 Watts	117 dB SPL		500-12k Hz	500 Hz	1 1/2 in 4.4 cm	Aluminum	10 lbs 4.5 kg	19,000	5 1/2" 14.6 cm	3 3/8" 9.8 cm	11 lbs 5.0 kg
2482	2 in 5.1 cm	16 ohms	120 Watts	118 dB SPL		300-6k Hz	300 Hz	4 in 10.2 cm	Aluminum	23 3/4 lbs 10.8 kg	20,500	7" 17.8 cm	5 3/8" 13.6 cm	24 1/2 lbs 11.3 kg

1. Measured sensitivity of the 2402 represents the SPL achieved with an input signal swept from 4 to 20 kHz. Sensitivity of the 2405 is measured with a signal swept from 7 to 20 kHz, each at the power levels and distances indicated. Such test conditions, however, are not applicable to sensitivity measurement of compression drivers. As specified by recognized standards organizations, sensitivity of the other drivers is measured with the driver coupled to a terminated tube. The JBL sensitivity rating represents

the SPL in a 1-inch (2.5 cm) diameter terminated tube using a 1-mW input signal (0.126 volts into 16 ohms) swept from the lowest recommended crossover frequency to 2500 Hz. 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 Watts continuous program in the region between 500 and 800 Hz.

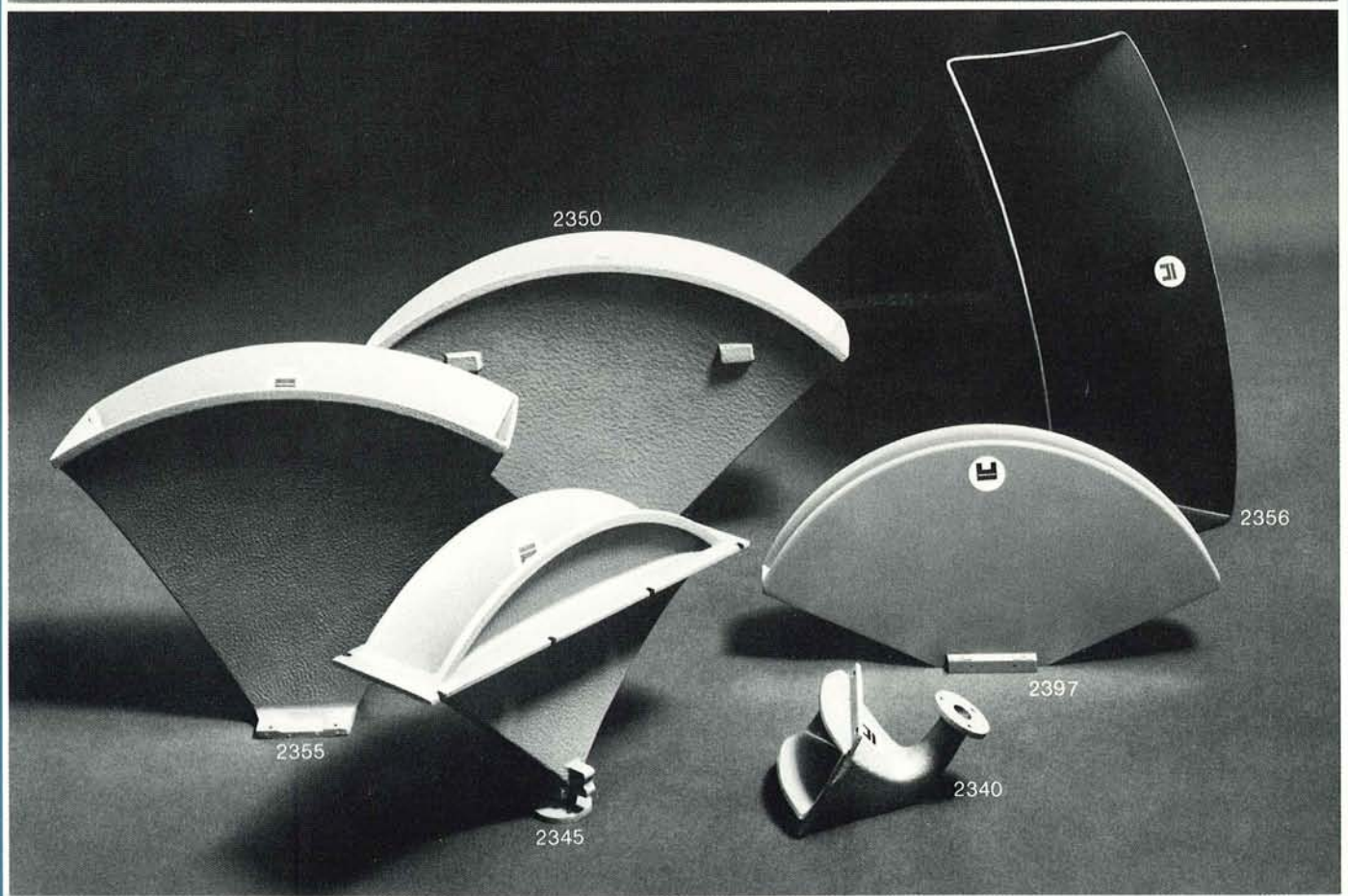
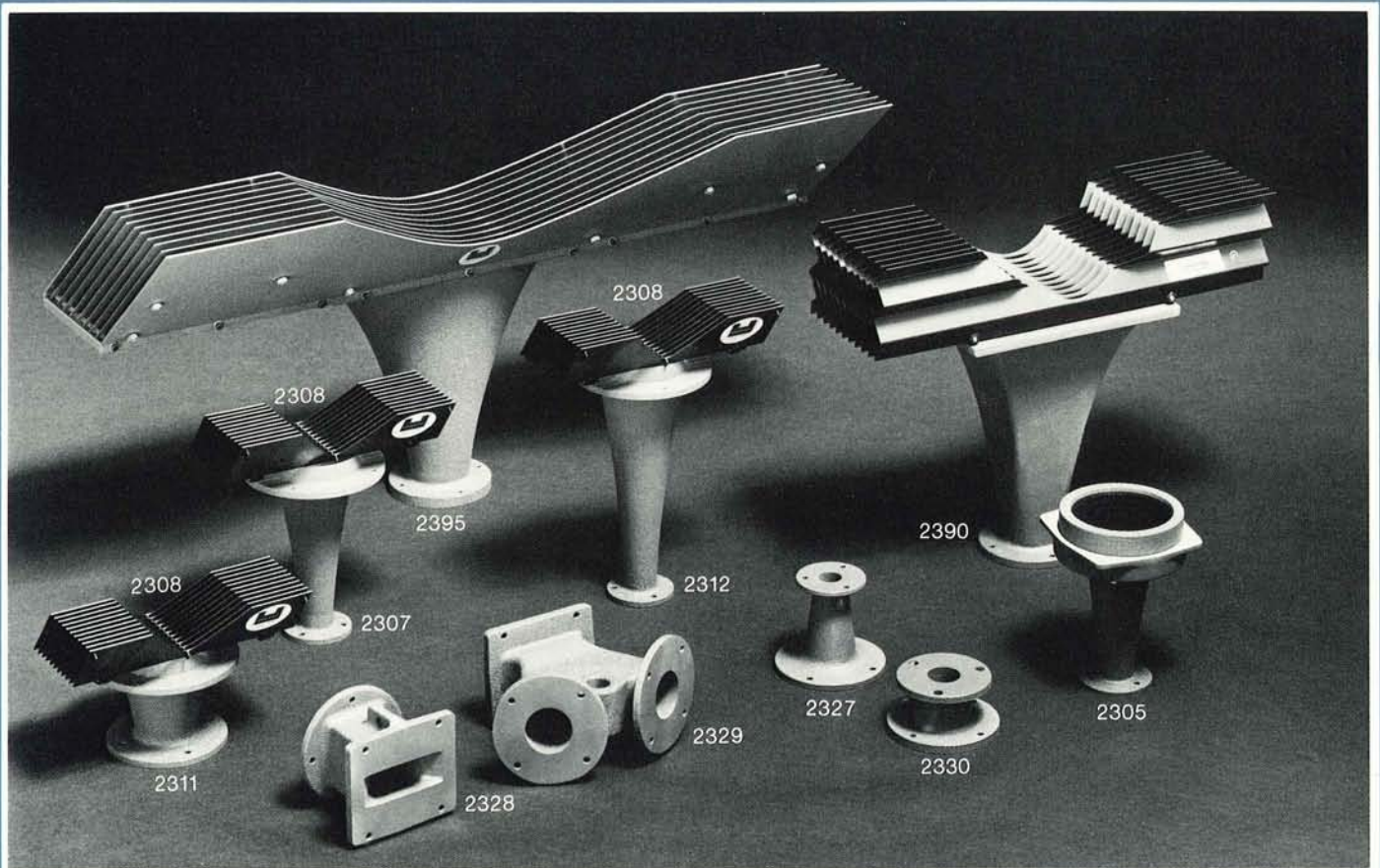
### Dividing Networks<sup>1</sup>

	Crossover Frequency	Power Capacity (Continuous Program)	Low Frequency Impedance	High Frequency Impedance	High Frequency Attenuation
3105 <sup>2</sup>	7000 Hz	50 Watts	12-16 ohms	12-16 ohms	Continuously variable
3106 <sup>3</sup>	8000 Hz	50 Watts	12-16 ohms	12-16 ohms	Continuously variable
3110	800 Hz	100 Watts	12-16 ohms	12-16 ohms	6-8-10 dB, switch
3115	500 Hz	100 Watts	12-16 ohms	12-16 ohms	6-8-10 dB, switch
3120	1200 Hz	75 Watts	8-12 ohms	12-16 ohms	0-3-6 dB, switch
3125	1200 Hz	100 Watts	For Model 2150 Only		Fixed
3152	500 Hz	250 Watts	12-16 ohms	12-16 ohms	0-2-4-6-8 dB, strap
3182	800 Hz	250 Watts	12-16 ohms	12-16 ohms	0-2-4-6-8 dB, strap

1. General application networks (models 3105, 3106, 3115, 3120 and 3125) mount in a 4 1/2" x 5 1/2" (10.8 x 14.0 cm) cutout. High power networks (models 3152 and 3182) are usually mounted outside the enclosure or in some other convenient location, and require an area 8 1/4" x 7 1/2" (21.0 x 19.2 cm) 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 pattern make JBL horn/lens assemblies particularly well suited for high quality music reproduction and for short throw sound reinforcement applications of 30 to 60 feet (9 to 18 m).

JBL exponential horns are rigid castings that function without adding resonances. The physical barriers of the lens shape the emerging wavefront by causing energy at the edges of the wave to travel further, within the 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 30 feet (9 m).

**2308 Lens** A 10-inch (25 cm) slant-plate lens for use where the length of throw does not exceed 30 feet (9 m). 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 2-inch 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 2-inch horn entry to 1-inch driver. May be used in reverse with some loss above 8 kHz. Length: 4½" (10.5 cm).

**2328 Horn Throat** Required to mount a 2-inch JBL driver on the 2350, 2355 or 2397 horn. Length: 3¾" (9.8 cm).

**2329 Dual Entry Throat** Required to mount a pair of 2-inch JBL drivers on the 2350, 2355 or 2397 horn. Length: 7½" (18.3 cm).

**2330 Adaptor** Tapered to mount a 2-inch JBL driver on a horn having a 1.4-inch (3.56 cm) entry. Length: 2¾" (6.0 cm).

## 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 further 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 <sup>1</sup> (Horizontal x Vertical)	Crossover Frequency	1mW, 30 ft. (9.1 m)	1 W, 1m (3.3 ft.)	Sensitivity <sup>2</sup> 109 dB SPL	Entry Diameter Or Throat Required <sup>3</sup>	Dimensions (Height x Width x Depth)	Baffle Cutout Diameter	Net Weight
2305	Perforated Plate	90° conical	1200 Hz	60 dB SPL	109 dB SPL	1 in 2.5 cm	5½" (14.6 cm) diameter x 7¾" (19.7 cm) length	5¼"	3½ lbs 1.4 kg
2308	Slant Plate	80° x 45°					6½" x 10" x 2½" 15.6 x 25.4 x 6.3 cm		1 lb 0.5 kg
2307	Exponential		1200 Hz	59 dB SPL	108 dB SPL	1 in 2.5 cm	6½" (15.6 cm) diameter x 8½" (21.6 cm) length	4½"	2½ lbs 1.1 kg
2311	Exponential		1200 Hz	59 dB SPL	108 dB SPL	2 in 5.1 cm	6½" (15.6 cm) diameter x 4¾" (11.7 cm) length	4½"	2 lbs 0.9 kg
2312	Exponential		800 Hz	59 dB SPL	108 dB SPL	1 in 2.5 cm	6½" (15.6 cm) diameter x 11½" (29.3 cm) length	4½"	2½ lbs 1.0 kg
2390	Folded Plate	100° x 45°	800 Hz	58 dB SPL	107 dB SPL	2 in 5.1 cm		6" x 9"	11 lbs 5.0 kg
	Horn						7½" x 10½" x 12" 19.1 x 26.7 x 30.5 cm		
	Lens						7" x 19½" x 4¾" 17.8 x 50.5 x 11.8 cm		
2395	Slant Plate	140° x 45°	800 Hz <sup>4</sup>	59.5 dB SPL	108.5 dB SPL	2 in 5.1 cm	15" x 36" x 18¾" 38.1 x 91.4 x 47.6 cm	Free-standing brackets supplied	25½ lbs 11.6 kg
2340	Radial right angle	80° x 60°	1200 Hz	59 dB SPL	108 dB SPL	1 in 2.5 cm	8½" x 8¾" x 8¾" 20.6 x 21.3 x 21.3 cm		4½ lbs 2.0 kg
2345	Radial	90° x 40°	800 Hz	62 dB SPL	111 dB SPL	1 in 2.5 cm	6¾" x 22¾" x 15¾" 17.1 x 56.8 x 39.1 cm		14½ lbs 6.6 kg
2350	Radial	90° x 40°	500 Hz	62 dB SPL	111 dB SPL	2328 or 2329	8" x 31¾" x 20" 20.3 x 80.3 x 50.8 cm		25½ lbs 11.6 kg
2355	Radial	60° x 40°	500 Hz	65 dB SPL	114 dB SPL	2328 or 2329	8" x 24¾" x 20" 20.3 x 61.3 x 50.8 cm		16 lbs 7.3 kg
2356	Radial	40° x 20°	300 Hz	70 dB SPL	119 dB SPL	2 in 5.1 cm	16½" x 33" x 48¾" 41.9 x 83.8 x 123.8 cm		24½ lbs 11.2 kg
2397	Diffraction	140° x 60°	800 Hz	59 dB SPL	108 dB SPL	2328 or 2329	3¾" x 26" x 13¾" 9.5 x 66.0 x 34.0 cm		9½ lbs 4.4 kg

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 2500 Hz, with any JBL driver.

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 2-inch JBL drivers

4. respectively. The 2327 adaptor can be bolted to the throat if it is desirable to substitute 1-inch JBL drivers; the 2327 can also be used to reduce the 2-inch entry of the 2390 or 2395 to accommodate 1-inch JBL drivers.

5. 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



6006B



6010B



6020



6233

## 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-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 1 EIA standard rack space. Net weight and dimensions are the same for both units: 4 lbs (1.8 kg), 1 $\frac{1}{4}$ " x 19" x 7 $\frac{1}{2}$ " deep (4.4 x 48.3 x 19.4 cm deep).

## Power Amplifiers

**6006B, 6010B, 6020 Single Channel** The 6006B, 6010B and 6020 power amplifiers are designed for maximum flexibility in varying input and output configurations. The standard 50,000-ohm unbalanced input may be converted to a balanced (15,000-ohm bridging or 600-ohm matching) input by installing an accessory transformer, JBL Model 5195.

Protective circuitry makes it virtually impossible to damage one of these amplifiers under any conditions. A switch on the rear panel activates a 250-Hz low cut filter.

Front panel finish is dark gray semi-gloss baked enamel; each unit measures 8 $\frac{1}{4}$ " x 19" x 11 $\frac{1}{2}$ " deep (22.2 x 48.3 x 29.5 cm deep) and mounts in 5 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 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 ( $\frac{1}{4}$  power) less than the light above it. The standard input impedance of 20,000 ohms 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 122°F (50°C) 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 5 $\frac{1}{4}$ " x 19" x 18 $\frac{1}{2}$ " deep (13.3 x 48.3 x 46.5 cm deep) and mounts in 3 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	1200 Hz
52-5125	5000 Hz
52-5127	7000 Hz 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

Sensitivity	Power Output <sup>1</sup>		Total Harmonic Distortion <sup>2</sup> (rated output)	Intermodulation Distortion			Signal/Noise Ratio (rated output)	Transformer Outputs	Direct Output	Net Weight
	Per Channel	Bridged		Less than 2% at	Less than 1% at	Less than 1% at				
6006B 0.7 volts	60 Watts RMS, 40-12k Hz		Less than 1.0%	60 Watts RMS	10 Watts RMS	0.15 Watts RMS	Better than 85 dB	8 ohms, 16 ohms or 70.7 volts	4 ohms minimum	37 lbs 17 kg
6010B 0.7 volts	100 Watts RMS, 40-12k Hz		Less than 1.0%	100 Watts RMS	10 Watts RMS	0.15 Watts RMS	Better than 85 dB	8 ohms, 16 ohms or 70.7 volts	4 ohms minimum	46 lbs 21 kg
6020 0.7 volts	200 Watts RMS, 35-10k Hz		Less than 0.5%	200 Watts RMS	10 Watts RMS	0.15 Watts RMS	Better than 90 dB	8 ohms, 16 ohms or 70.7 volts	4 ohms minimum	56 lbs 25 kg
6233 0.77 volts	300 Watts RMS into 4 ohms, 200 Watts RMS into 8 ohms	700 Watts RMS into 8 ohms, 400 Watts RMS into 16 ohms	Less than 0.05%	300 Watts RMS	10 Watts RMS	0.15 Watts RMS	Better than 100 dB	none	4 ohms minimum	34 $\frac{1}{2}$ lbs 15.7 kg

1. Power output quoted for the 6233 from 20 to 20,000 Hz.

2. Total harmonic distortion quoted for the 6233 is with both channels driven into 4-ohm loads, 20-20,000 Hz.



5101B



5152



5306



5308



5600-2B



7125



7126

## Mixers and Preamplifiers

**5101B Preamplifier** The 5101B is a single-channel microphone preamplifier that accepts a high impedance microphone. A low impedance microphone can be accommodated by installing a 5901 accessory transformer. The unbalanced output can be converted to balanced operation by installing a 5195 transformer.

**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 transformer 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- to 600-ohm microphones. Microphone input transformers and an output transformer are included. Program channel 1 impedance is 50,000 ohms unbalanced and is convertible to 10,000-ohm 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 light gray non-glare baked enamel. A dark gray semi-gloss baked enamel panel, matching the 5306, is available for dealer installation. Dimensions are 3½" x 19" x 9" deep (8.9 x 48.3 x 22.9 cm deep) and net weight is 10½ lbs. (4.8 kg).

**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 a 5901 transformer or to a 50,000-ohm unbalanced program input by installing a 5904 T-Pad. The two program channels will each accept a 5195 transformer to provide a 15,000-ohm bridging or 600-ohm matching balanced input. The socket will also accommodate a 5191 Magnetic Phono/Tapehead Preamp. A cue control allows audition through the headphone jack.

## Special Purpose Electronics

**7125 Safety Matrix** The 7125 combines the 70-volt 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 5½" x 19" x 5¾" deep (13.3 x 48.3 x 14.6 cm deep); the unit mounts in 3 EIA standard rack spaces and net weight is 20½ lbs (9.3 kg).

**7126 Compressor** The 7126 functions as a compressor or line amplifier. A front panel switch permits selection of the linear mode, compression ratios and release time. Compression ratios are 2:1 or 4:1, maximum compression is 20 dB and the threshold of compression is 0 dBm. Release times are 0.5 or 1.5 seconds. The 7126 will drive a 600-ohm balanced line.

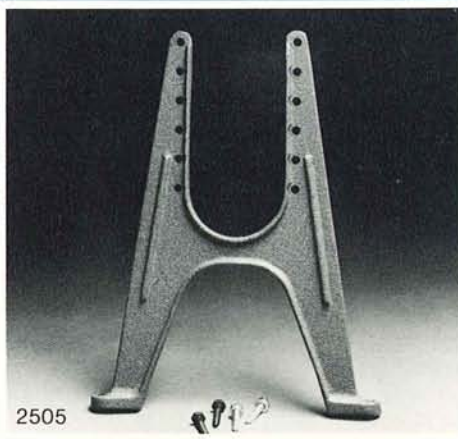
	Gain <sup>1</sup>	Maximum Output Level	Frequency Response	Total Harmonic Distortion	Inter-modulation Distortion	Equivalent Input Noise	Panel Finish	Dimensions	Mounting	Net Weight
5101B	75 dB	+10 dBm	20-20,000 Hz, ±1 dB	Less than 0.25%	Less than 1.0%	-122 dBm, 20-kHz bandwidth	Semi-gloss baked enamel, dark gray	13½" x 19" x 5½" deep 4.4 x 48.3 x 14.0 cm deep	1 EIA standard rack space	5½ lbs 2.6 kg
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	20-20,000 Hz, +0, -1 dB	Less than 0.2%	Less than 0.2%	-125 dBm, 20-kHz bandwidth	Semi-gloss baked enamel, dark gray	13½" x 19" x 9¾" deep 4.4 x 48.3 x 23.8 cm deep	1 EIA standard rack space	8 lbs 3.6 kg
5306	Microphone 86 dBm Program 40 dB	+24 dBm	20-20,000 Hz, ±1 dB	Less than 0.2% at +18 dBm	Less than 0.2% at +18 dBm	-125 dBm, 20-kHz bandwidth	Semi-gloss baked enamel, dark gray	5¼" x 19" x 9" deep 13.3 x 48.3 x 22.9 cm deep	3 EIA standard rack spaces	12 lbs 5.4 kg
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	20-20,000 Hz, ±1 dB	Less than 0.25% at +18 dBm	Less than 0.5%	-122 dBm, 20-kHz bandwidth	Semi-gloss baked enamel, dark gray	5¼" x 19" x 10" deep 13.3 x 48.3 x 25.4 cm deep	3 EIA standard rack spaces	12½ lbs 5.6 kg
7126	55 dB high impedance, 75 dB low impedance with 5901, 40 dB line level with internal modification	+26 dBm	20-20,000 Hz, ±1 dB	Less than 0.5% at +24 dBm in linear mode Less than 1% for 20-dB compression			Non-glare baked enamel, light gray	3½" x 19" x 10¾" deep 8.9 x 48.3 x 27.3 cm deep	2 EIA standard rack spaces	12½ lbs 5.8 kg

1. Gain quoted for the 7126 is in the linear mode.





MA15



2505



5190B



5191



5192



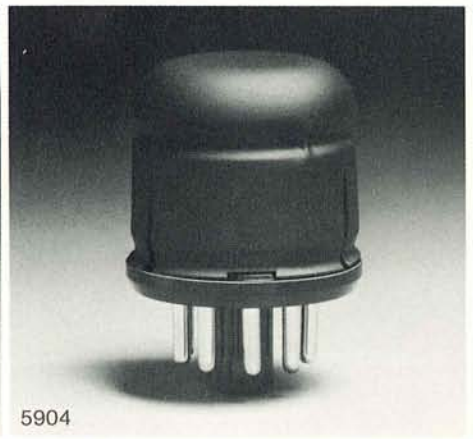
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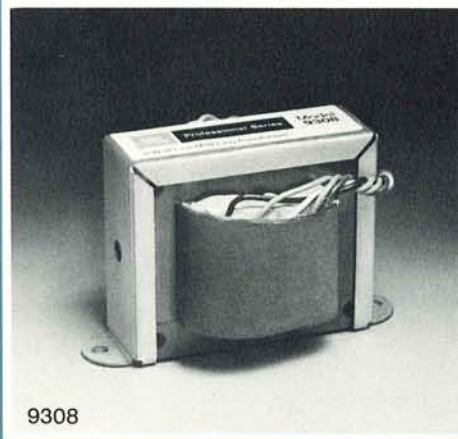
5196



5901



5904



9308



9375

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 is always warranted to equal or exceed the original design specifications unless otherwise stated.

## Accessories

### MA15 Loudspeaker Mounting Kit

The MA15 simplifies front mounting of JBL 15-inch 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 12-inch and 18-inch 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 18-inch loudspeaker, due to the unit's additional mass. The MA15, however, cannot be used to mount a K145 15-inch loudspeaker since the clamps will not fit the unit's frame.

**2505 Adjustable Horn Mount** A cast iron rear mount for orientation of any JBL high frequency horn having a 2-inch (5.1 cm) 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. Furnished standard with the 2395 horn/lens, the 2505 is 13 $\frac{1}{8}$ " (33.2 cm) high and allows adjustment of driver height in 1-inch (2.5 cm) increments. The base mounts on a horizontal surface with mounting holes spaced 9 $\frac{1}{4}$ " (23.5 cm) apart.

### 5190B Microphone Preamp

**Expander Module** The 5190B adds two high impedance microphone channels to the 5600-2B mixer/pre-amplifier and will accept the 5901 accessory transformer 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, 7 $\frac{1}{2}$  ips (19 cm/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/pre-amplifier.

**5195 Matching/Bridging Transformer** Provides a balanced input (15,000-ohm bridging or 600-ohm matching) for the 6006B, 6010B, 6020 or 6233 power amplifiers, the 5152 preamplifier, and the 5600-2B mixer/preamplifier. The 5195 can also be used to convert the standard +10 dBm output of a 5101B or 5600-2B to a 600-ohm balanced line. Frequency response is 30 to 20,000 Hz 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 50,000-ohm unbalanced to 10,000-ohm balanced operation. Frequency response is 30 to 20,000 Hz 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 5101B, 5600-2B or 7126 to a balanced input for low impedance microphone. Frequency response is 30 to 20,000 Hz 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-Volt Line Matching Transformer** The 9308 is a 70-volt transformer with primary taps at 1, 2, 4 and 8 Watts. The secondary winding will match 4-, 8- or 16-ohm loudspeakers. Rated at 8 Watts with THD of less than 1% in any configuration, 30 to 15,000 Hz.

**9375 100-Watt Line Matching Transformer** The 9375 is a 100-Watt impedance matching autotransformer. It allows matching 4-, 8-, 16- and 32-ohm loads in any combination. As an example, a 9375 may be used to match two 16-ohm high frequency drivers to a 16-ohm network. THD is less than 1%, 30 to 15,000 Hz, in any configuration.



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