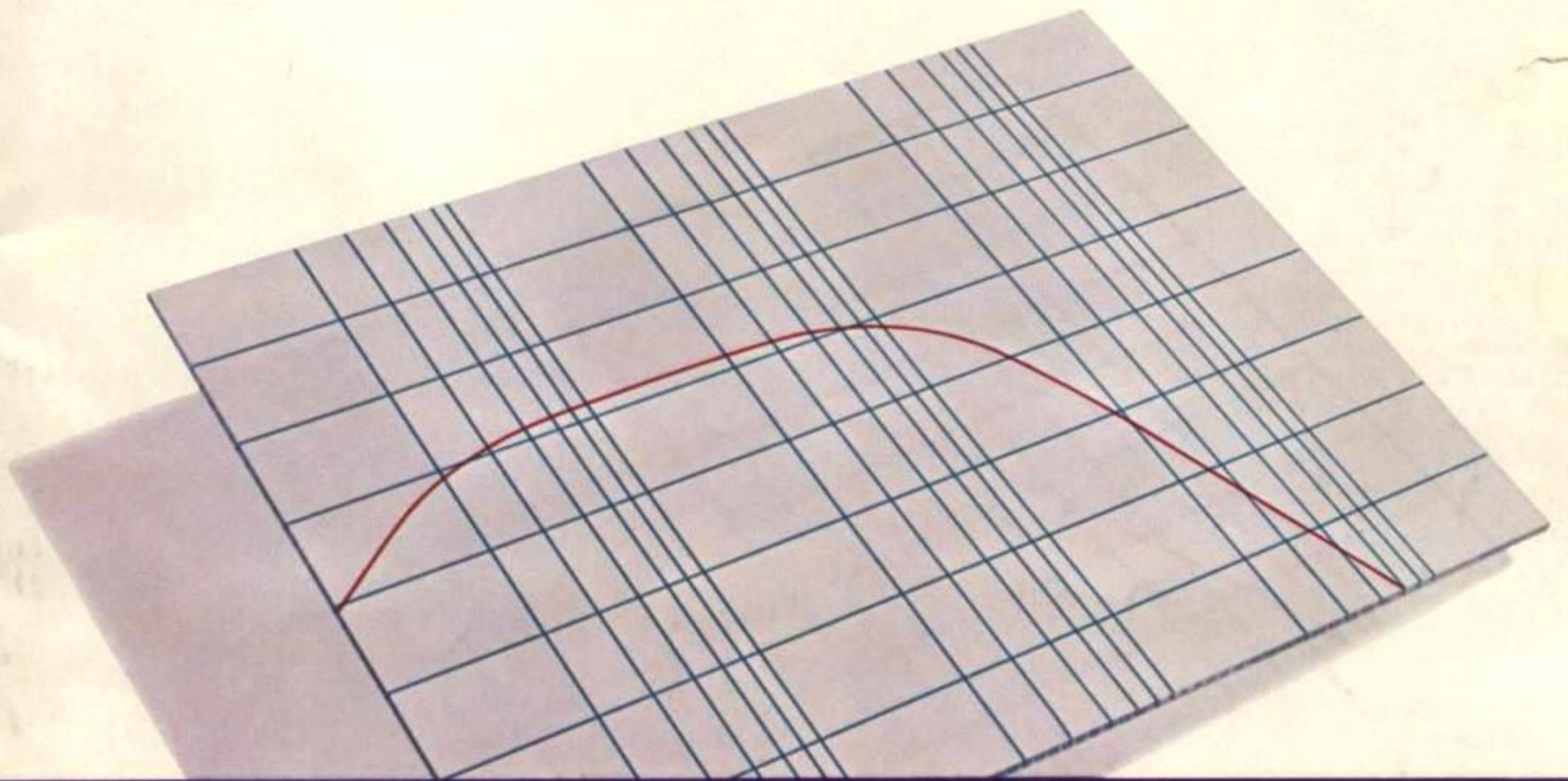


Professional Series



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PROFESSIONAL DIVISION WARRANTY

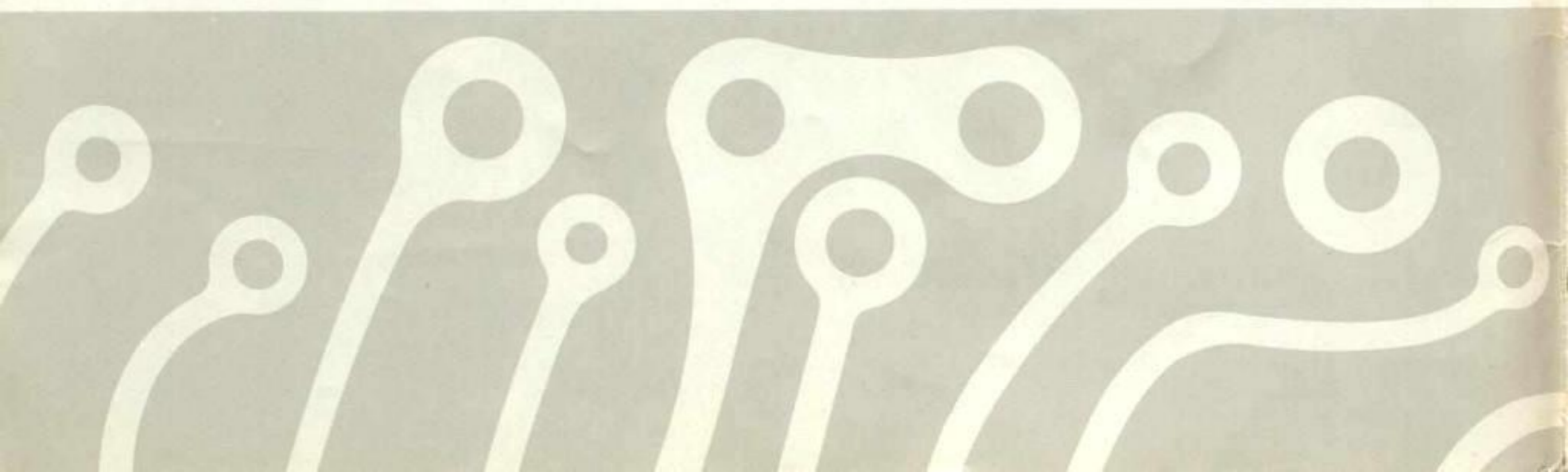
Every JBL Professional Series transducer is guaranteed against defects in material and workmanship for a period of five years. JBL electronic products are warranted for a period of two years. JBL will replace defective parts and make necessary repairs under this warranty if our examination reveals evidence 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 and will not be accepted unless written authorization has first been obtained.

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 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.

In this catalog are JBL's current Professional Series loudspeaker systems, components and electronics. They reflect the very latest developments in acoustic and electronic engineering, providing the performance, durability and versatility required of professional installations.

Transducer capacities are stated in continuous program power, taken as twice continuous sine wave power (RMS). 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.

Detailed information and applications engineering data for the products in this catalog may be obtained by writing directly to the Applications Engineer, Professional Division, James B. Lansing Sound, Inc., 3249 Casitas Avenue, Los Angeles, California 90039.



Studio Monitor Loudspeaker Systems

4311 CONTROL MONITOR

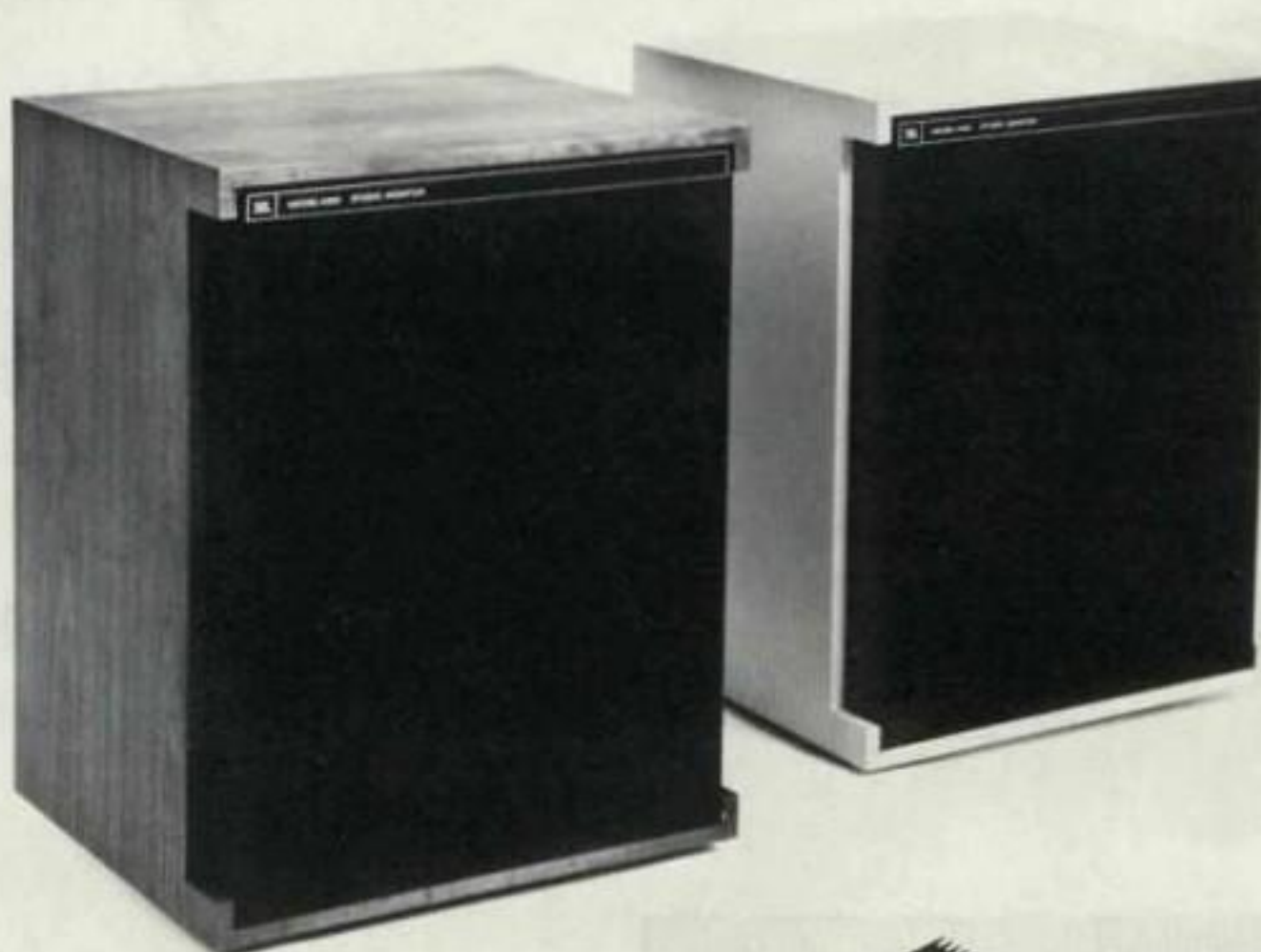
A compact loudspeaker system, the 4311 is useful in control rooms and other applications where space is limited, such as mobile studios or for remote listening in a large studio complex. The 4311 utilizes three cone drivers (12-inch low frequency, 5-inch midrange and 1.4-inch high frequency) to achieve a bandwidth of 45 to 15,000 Hz, ± 3 dB. Front panel controls below the grille permit convenient level adjustment of the midrange and high frequency drivers. The enclosure is available in textured gray or oiled walnut with a black grille.

4320 STUDIO MONITOR

Long a standard of the recording industry, the 4320 is a rugged, medium sized studio monitor having the power handling capacity and durability necessary for playback facilities in which sustained high levels (above 90 dB) are encountered. Its system consists of a 15-inch low frequency loudspeaker and a high frequency compression driver with an exponential horn and acoustic lens. Frequency response is 45 to 15,000 Hz, ± 3 dB. The 4320 is offered in textured gray or oiled walnut with a charcoal black grille.



4311



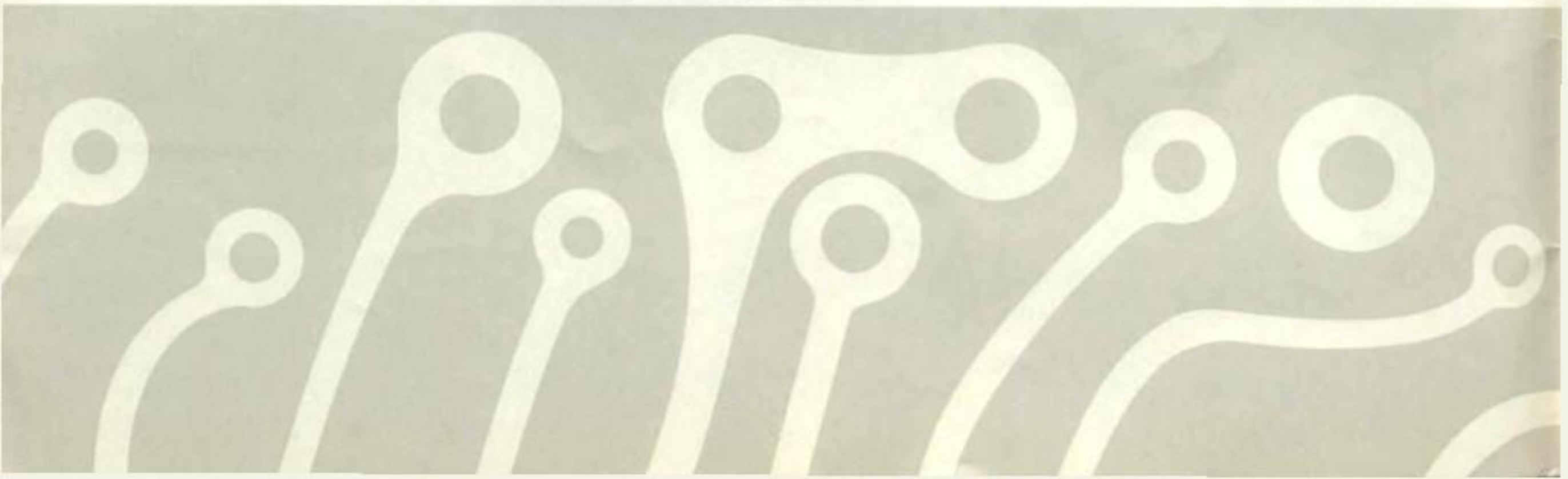
4320



4311 COMPONENTS



4320 COMPONENTS





4330 AND 4331 STUDIO MONITORS
 Further refinements of the 4320 studio monitor that has established standards for the recording industry, the 4330 and 4331 achieve a frequency response of 35 to 15,000 Hz, ± 3 dB with a newly developed 15-inch low frequency loudspeaker and the existing wide range high frequency compression driver and horn/lens assembly. The 4330 is provided with high and low frequency input terminals for bi-amplification. The 4331 includes a passive frequency dividing network tailored to the loudspeaker system components and enclosure. Two exterior treatments are offered: textured gray with a black grille and oiled walnut with a dark blue grille.

4330/4331



COMPONENTS

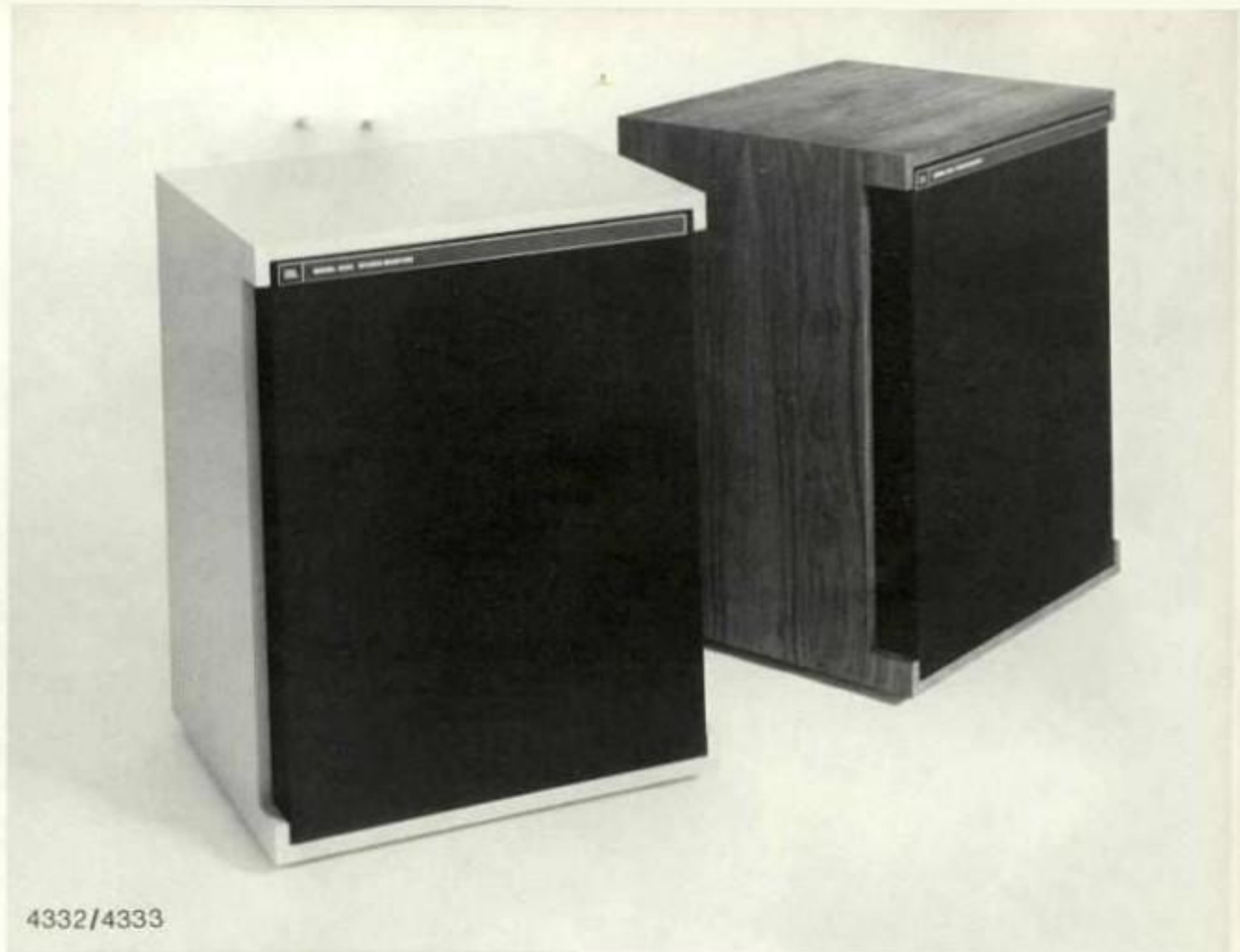
	Frequency Response (± 3 dB)	Power Capacity (Steady State)	Nominal Impedance	Sensitivity ¹	Crossover Frequencies	Enclosure Volume	Exterior Dimensions (Height x Width x Depth)	Net Weight
4311	45-15k Hz	40 Watts	8 ohms	42 dB	1500 and 6000 Hz	1.5 cu. ft. 42.5 liters	23 $\frac{1}{2}$ " x 14 $\frac{1}{4}$ " x 11 $\frac{3}{4}$ " 60 x 36 x 30 cm	42 lbs 19 kg
4320	45-15k Hz	60 Watts	16 ohms	46 dB	800 Hz	4.5 cu. ft. 127 liters	30 $\frac{3}{4}$ " x 23 $\frac{3}{4}$ " x 20 $\frac{1}{4}$ " 78 x 60 x 51 cm	97 lbs 44 kg
4330	35-15k Hz	75 Watts below 800 Hz 30 Watts above 800 Hz	8 ohms	44 dB	800 Hz	4.5 cu. ft. 127 liters	30 $\frac{3}{4}$ " x 23 $\frac{3}{4}$ " x 20 $\frac{1}{4}$ " 78 x 60 x 51 cm	94 lbs 43 kg
4331	35-15k Hz	75 Watts	8 ohms	44 dB	800 Hz	4.5 cu. ft. 127 liters	30 $\frac{3}{4}$ " x 23 $\frac{3}{4}$ " x 20 $\frac{1}{4}$ " 78 x 60 x 51 cm	96 lbs 44 kg

¹ Sensitivity is measured at 30 feet (9.1 m) with a 1-milliwatt input, averaged from 500 to 2500 Hz, with controls set for flattest response.



4332 AND 4333 STUDIO MONITORS

An expansion of the loudspeaker system installed in the 4330 and 4331, these monitors feature an additional ultra-high frequency transducer that extends bandwidth of the system to 20,000 Hz, ± 3 dB. The ultra-high frequency transducer is equipped with an integral diffraction horn that maintains a 90° horizontal x 30° vertical polar pattern to 16 kHz. The 4332 is fitted with input terminals for bi-amplification of the low frequency crossover and includes a tailored passive network for the high frequency section. The 4333 is provided with a tailored passive frequency dividing network for both transitions of the system. The enclosure is identical to that of the 4330 and 4331.



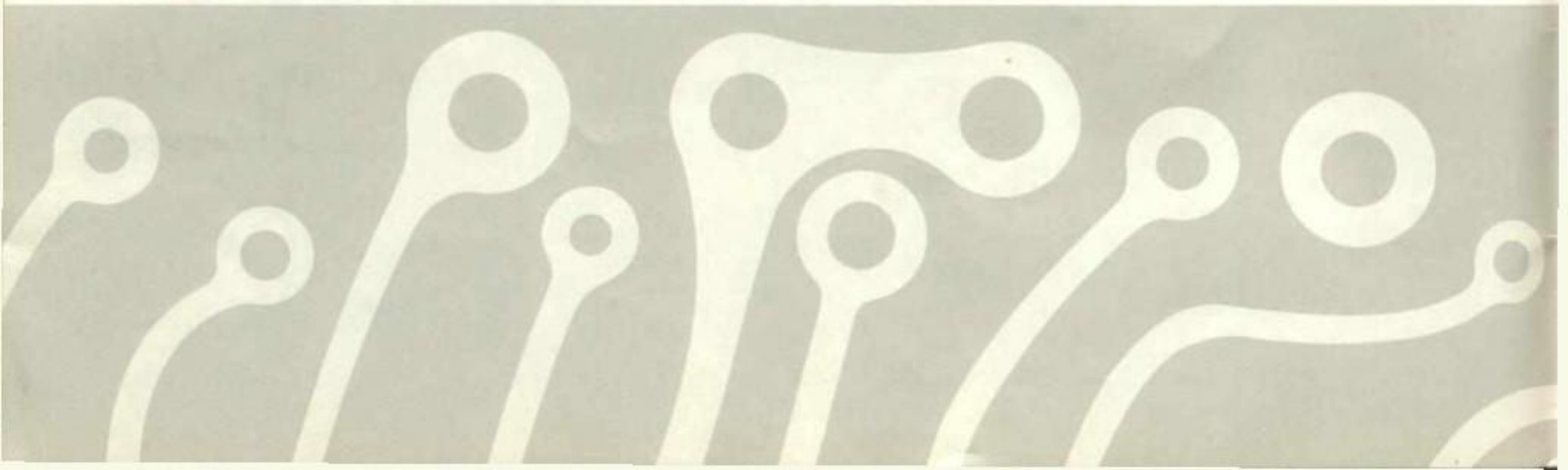
4332/4333



COMPONENTS

	Frequency Response (± 3 dB)	Power Capacity (Steady State)	Nominal Impedance	Sensitivity ¹	Crossover Frequencies	Enclosure Volume	Exterior Dimensions (Height x Width x Depth)	Net Weight
4332	35-20k Hz	75 Watts below 800 Hz 30 Watts above 800 Hz	8 ohms	44 dB	800 and 8500 Hz	4.5 cu. ft. 127 liters	30 $\frac{1}{2}$ " x 23 $\frac{1}{2}$ " x 20 $\frac{1}{4}$ " 78 x 60 x 51 cm	100 lbs 45 kg
4333	35-20k Hz	75 Watts	8 ohms	44 dB	800 and 8500 Hz	4.5 cu. ft. 127 liters	30 $\frac{1}{2}$ " x 23 $\frac{1}{2}$ " x 20 $\frac{1}{4}$ " 78 x 60 x 51 cm	104 lbs 47 kg

1. Sensitivity is measured at 30 feet (9.1 m) with a 1-milliwatt input, averaged from 500 to 2500 Hz, with controls set for flattest response.



4340 AND 4341 STUDIO MONITORS
 The 4340 and 4341 are JBL's most sophisticated medium sized monitors. The system consists of 15-inch low frequency and 10-inch midrange loudspeakers, a high frequency compression driver with an exponential horn and acoustic lens, and an ultra-high frequency transducer. The 4340 and 4341 provide exceptional clarity, transient response and low distortion for control room and mastering applications. Bandwidth of either unit is 35 to 20,000 Hz, ± 3 dB. The 4340 has provision for bi-amplification of the low frequency transition and includes a tailored passive frequency dividing network for the remainder of the system. The 4341 is supplied with a passive network specifically designed for the system components and enclosure. Rigidly constructed of 1-inch stock, the enclosure has provision for mirror image mounting of the ultra-high frequency transducer and is available in textured gray with a black grille or oiled walnut with a dark blue grille.

4340/4341

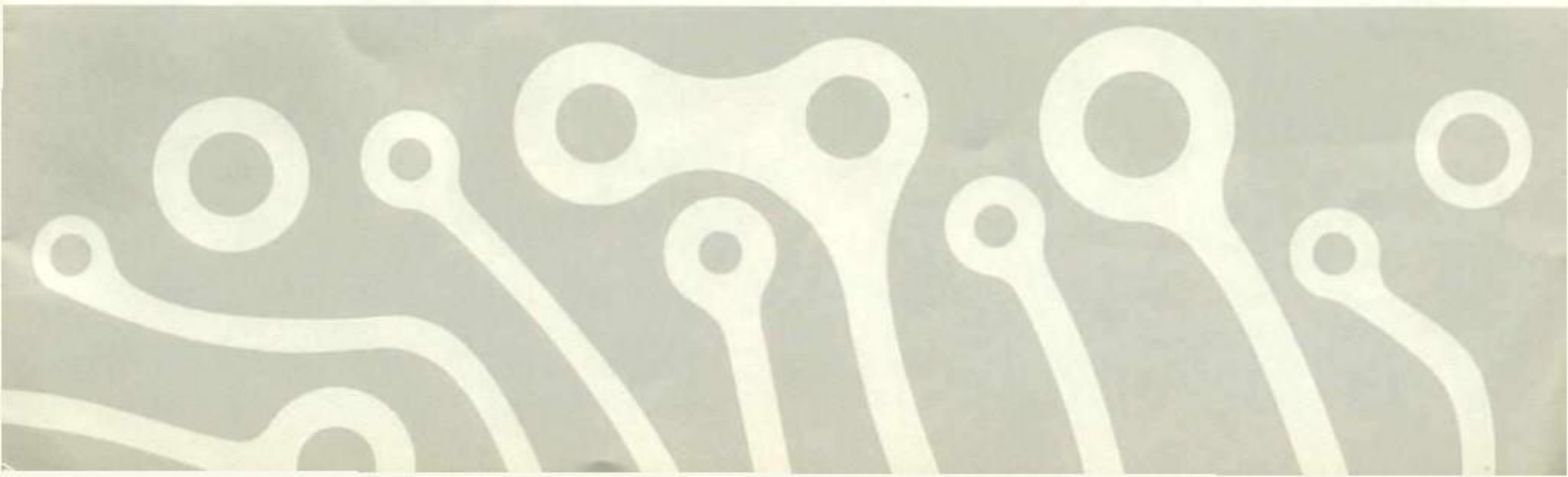


COMPONENTS

	Frequency Response (± 3 dB)	Power Capacity (Steady State)	Nominal Impedance	Sensitivity ¹	Crossover Frequencies	Enclosure Volume ²	Exterior Dimensions (Height x Width x Depth)	Net Weight
4340	35-20k Hz	75 Watts below 300 Hz 75 Watts above 300 Hz	8 ohms	44 dB	300, 1250 and 9500 Hz	5.5 cu. ft. 156 liters	37 $\frac{3}{4}$ " x 23 $\frac{3}{4}$ " x 19 $\frac{1}{2}$ " 95 x 60 x 50 cm	158 lbs 72 kg
4341	35-20k Hz	75 Watts	8 ohms	44 dB	300, 1250 and 9500 Hz	5.5 cu. ft. 156 liters	37 $\frac{3}{4}$ " x 23 $\frac{3}{4}$ " x 19 $\frac{1}{2}$ " 95 x 60 x 50 cm	160 lbs 73 kg

1. Sensitivity is measured at 30 feet (9.1 m) with a 1-milliwatt input, averaged from 500 to 2500 Hz, with controls set for flattest response.

2. The 4340 and the 4341 utilize an isolated sub-chamber within the main enclosure to house the midrange loudspeaker. Internal volume of the sub-chamber is 0.3 cu. ft. (8.5 liters).



4350 STUDIO MONITOR

The ultimate in high output, broad bandwidth, definition and efficiency for such applications as modern recording studios and disc mastering rooms. Frequency response of 30 to 20,000 Hz, ± 3 dB is achieved with two 15-inch low frequency loudspeakers, a 12-inch mid-range loudspeaker, a high frequency compression driver with an exponential horn and acoustic lens, and an ultra-high frequency transducer. The 4350 is designed for bi-amplification of the low frequency crossover and is provided with a passive network for the other transitions of the system. For optimum source localization, the enclosure allows mirror image mounting of the high frequency components. To facilitate inverted suspension, the bottom is finished to match the other surfaces of the enclosure; the base is removable; and eye bolts, anchored to an internal steel support brace, are provided. The enclosure is finished in textured gray with black grilles or oiled walnut with dark blue grilles.



4350

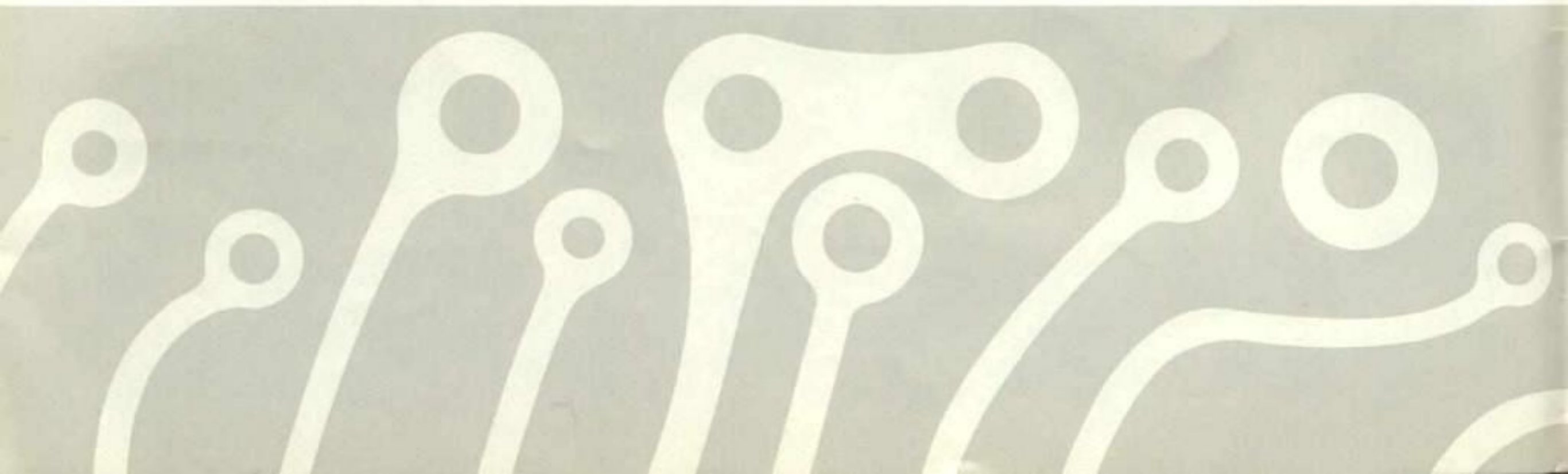


COMPONENTS

	Frequency Response (± 3 dB)	Power Capacity (Steady State)	Nominal Impedance	Sensitivity ¹	Crossover Frequencies	Enclosure Volume ²	Exterior Dimensions (Height x Width x Depth)	Net Weight
4350	30-20k Hz	200 Watts at 4 Ω below 250 Hz. 100 Watts at 8 Ω above 250 Hz	4 ohms below 250 Hz 8 ohms above 250 Hz	46.5 dB	250, 1100 and 9000 Hz	9.5 cu. ft. 269 liters	35" x 47 $\frac{3}{8}$ " x 20" 89 x 121 x 51 cm	243 lbs 110 kg

1. Sensitivity is measured at 30 feet (9.1 m) with a 1-milliwatt input, averaged from 500 to 2500 Hz, with controls set for flattest response.

2. The 4350 utilizes an isolated sub-chamber within the main enclosure to house the midrange loudspeaker. Internal volume of the sub-chamber is 1.2 cu. ft. (34.0 liters).



Special Purpose Loudspeaker Systems

4375 LINE ARRAY

A small, efficient, high powered speech-range system utilizing four rugged 5-inch drivers. Useful as a public address system in meeting rooms, churches and auditoriums where a high degree of intelligibility and wide dispersion are required. The 4375 delivers a bandwidth of 150 to 15,000 Hz through a 120° horizontal and 30° vertical pattern. Its shallow enclosure facilitates flush installation or other concealment. Finished in textured gray with a charcoal black fabric grille.

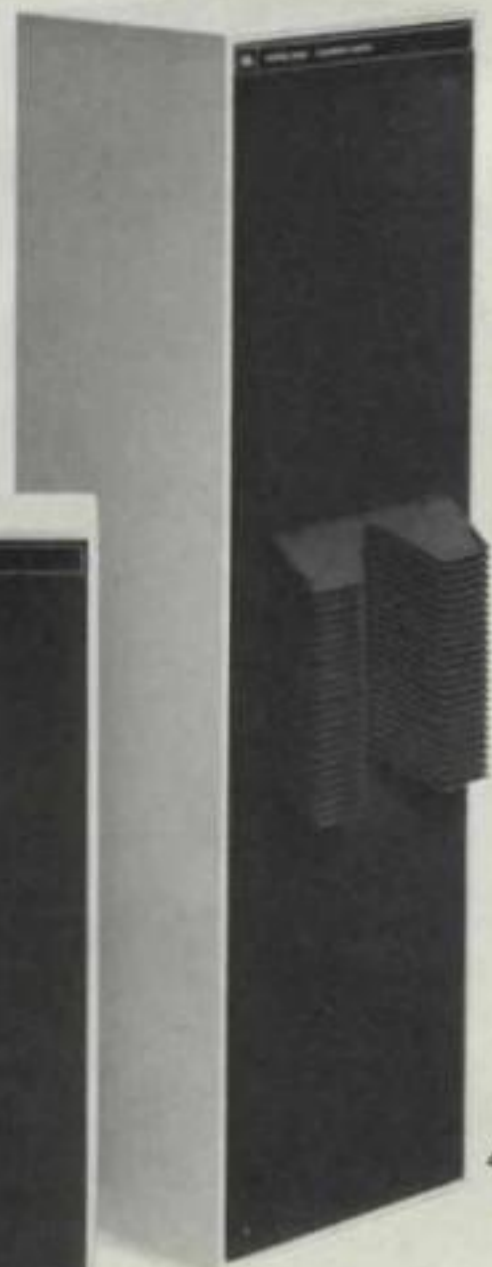
4380 COLINEAR ARRAY

An extended range, six-element array for larger meeting halls, churches or auditoriums. The broad bandwidth of the 4380 allows reproduction of moderate intensity musical accompaniment likely to be encountered in such applications. The two 5-inch and four 8-inch drivers are arranged in colinear configuration with overlapping wavefronts. Additional high frequency dispersion is accomplished with a slant-plate acoustic lens positioned over the 5-inch drivers. Frequency range is 55 to 15,000 Hz with dispersion through a 90° horizontal and 20° vertical pattern. Finished in textured gray with a charcoal black fabric grille.

4375



4380



4375 COMPONENTS



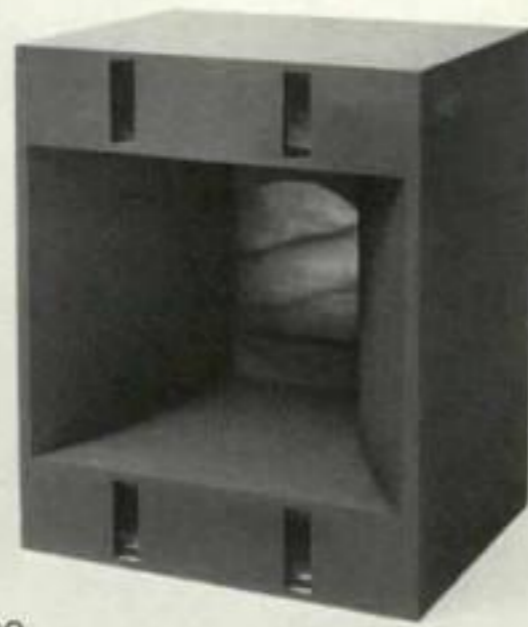
4380 COMPONENTS

	4375	4380
Frequency Range	150 - 15k Hz	55 - 15k Hz
Dispersion (Horizontal x Vertical)	120° x 30°	90° x 20°
Nominal Impedance	8 ohms	8 ohms
Power Capacity (Continuous Program)	100 Watts	100 Watts
EIA Sensitivity	51 dB	50 dB
Components	(4) 2105, 5" (13 cm)	(4) 2110, 8" (20 cm) (2) 2105, 5" (13 cm)
Crossover Frequency		1500 Hz
Enclosure Volume	1.2 cu. ft. 34.0 liters	3.3 cu. ft. 93.5 liters
Exterior Dimensions (Height x Width x Depth)	30" x 15 1/2" x 6 1/2" 76.2 x 40.0 x 16.5 cm	47 1/2" x 14 1/2" x 11 1/2" 121.3 x 36.2 x 28.9 cm
Net Weight	39 lbs 18 kg	81 lbs 37 kg

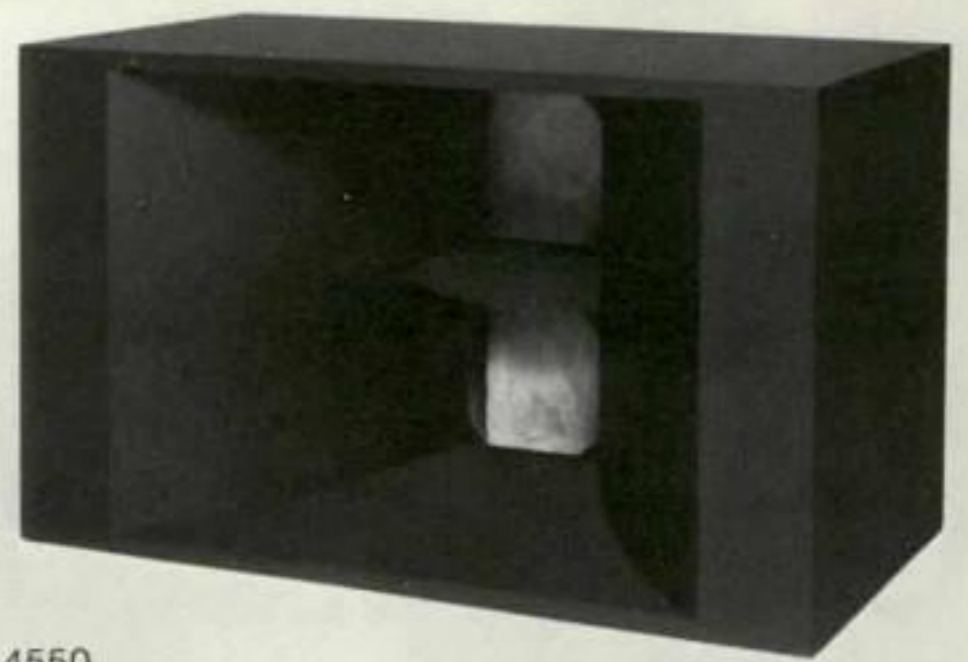


Low Frequency Horns

JBL low frequency horns are ideal for theater and high power sound reinforcement applications. They are constructed of dense stock with double sheets of plywood used for the curved surfaces. The rear panel of each unit is fitted with pushbutton terminals; the baffle panel accepts 15-inch drivers, and $\frac{1}{4}$ -20 T-nuts are pressed onto the panel to facilitate loudspeaker mounting. All units are finished in utility black.



4560



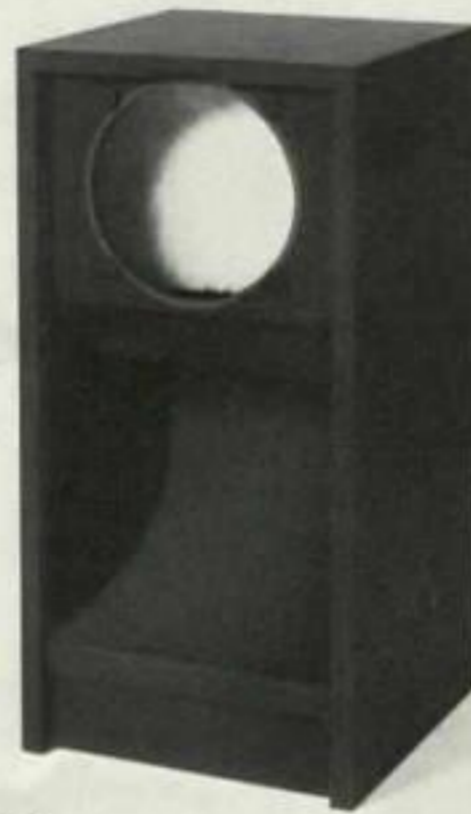
4550

4560 FRONT LOADING SINGLE DRIVER

A long throw directional horn for use below 800 Hz, the 4560's horn adds 6 dB to the sensitivity of the driver above 200 Hz, with usable response down to 60 Hz. The dispersion pattern of the 4560 is 90° horizontal and 60° vertical at 800 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 sensitivity of the drivers by 6 dB above 100 Hz, and provide usable response to 50 Hz. The horn achieves a 75° horizontal and 30° vertical dispersion pattern at 800 Hz.



4530



4520

4530 REAR LOADING SINGLE DRIVER

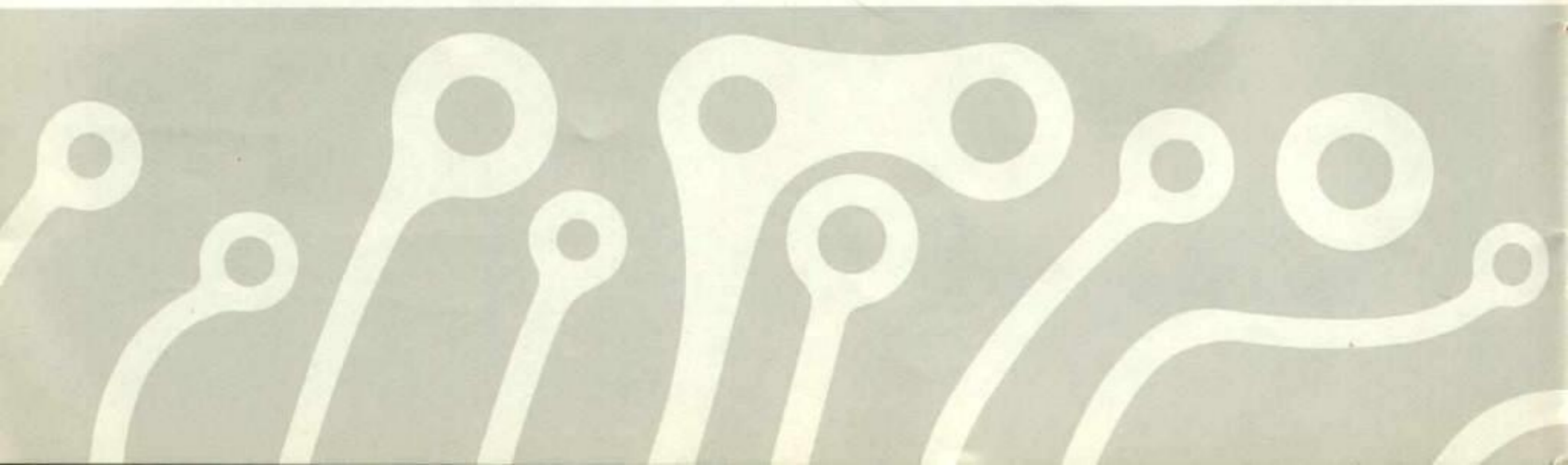
The 4530 is a short throw (to 75 feet) 7-foot folded horn with maximum loading to 50 Hz. It delivers uniform response to 60 Hz and is usable to 50 Hz. The driver acts as a direct radiator above 150 Hz.

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.

	4520	4530	4550	4560
Recommended Driver	2205	2205	2220, 2205 ¹	2220, 2205 ¹
Lowest Usable Frequency	30 Hz	50 Hz	50 Hz	60 Hz
Dimensions (Height x Width x Depth)	50 $\frac{1}{2}$ " x 35 $\frac{3}{4}$ " x 29 $\frac{3}{4}$ "	47 $\frac{1}{2}$ " x 23 $\frac{3}{4}$ " x 23 $\frac{3}{4}$ "	60" x 36" x 32 $\frac{1}{2}$ "	36" x 30" x 23 $\frac{3}{4}$ "
	128 x 91 x 76 cm	121 x 60 x 60 cm	152 x 91 x 83 cm	91 x 76 x 61 cm
Net Weight (Without Drivers)	215 lbs 98 kg	120 lbs 54 kg	195 lbs 88 kg	91 lbs 41 kg

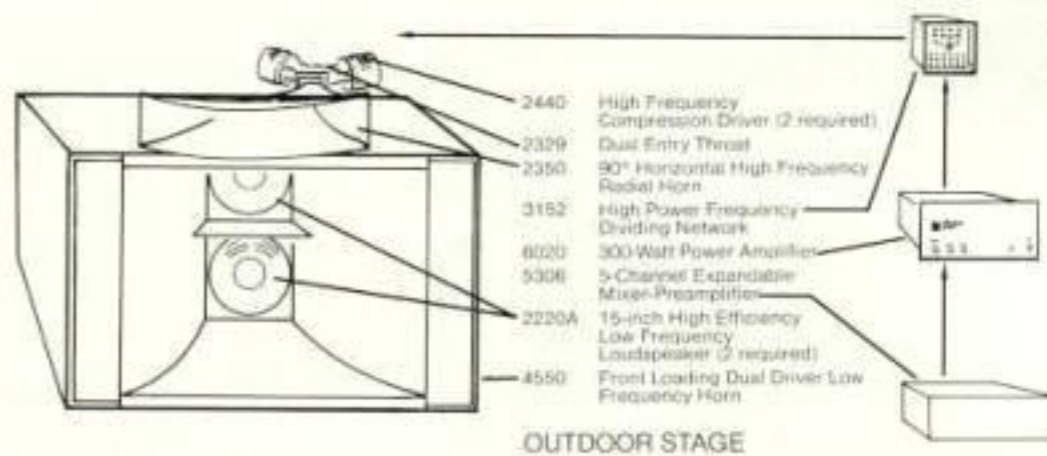
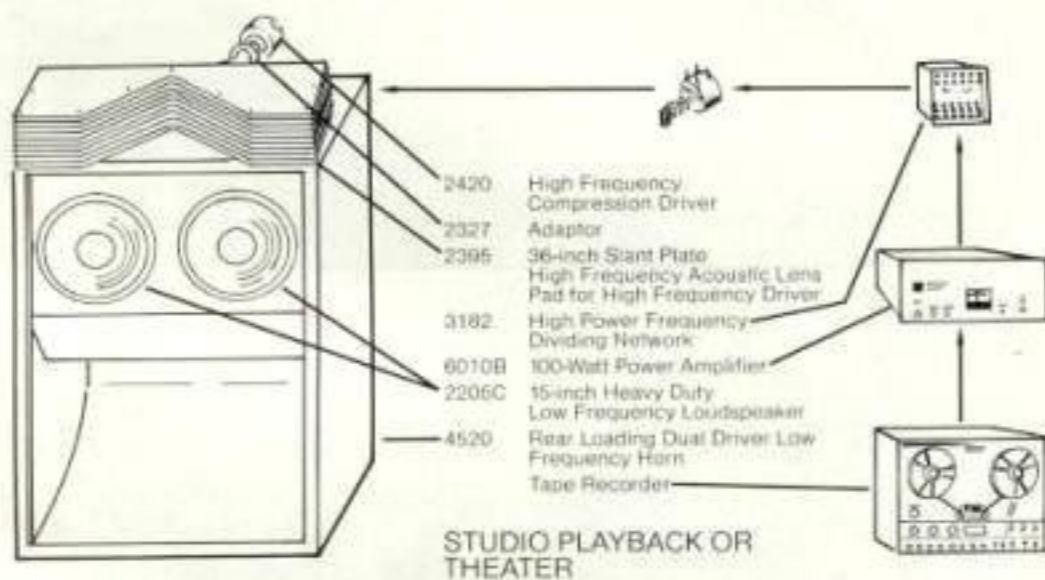
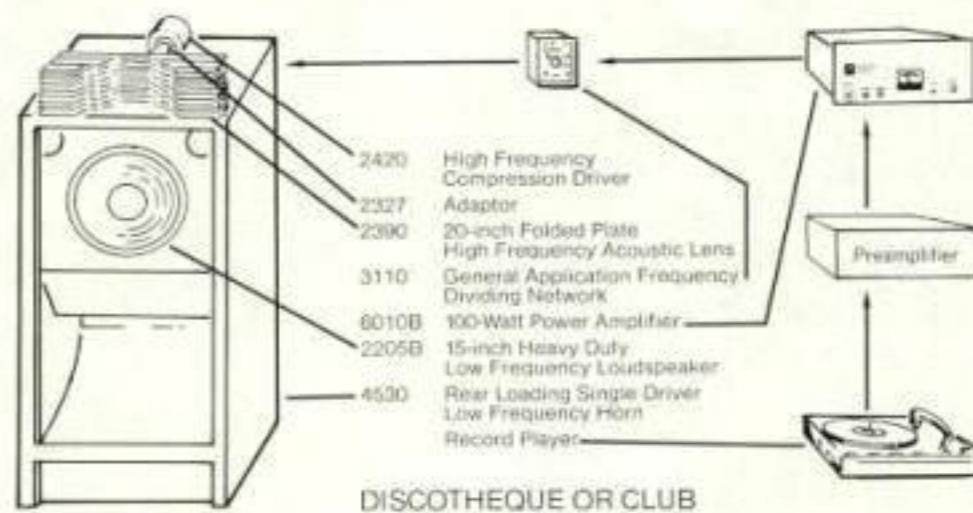
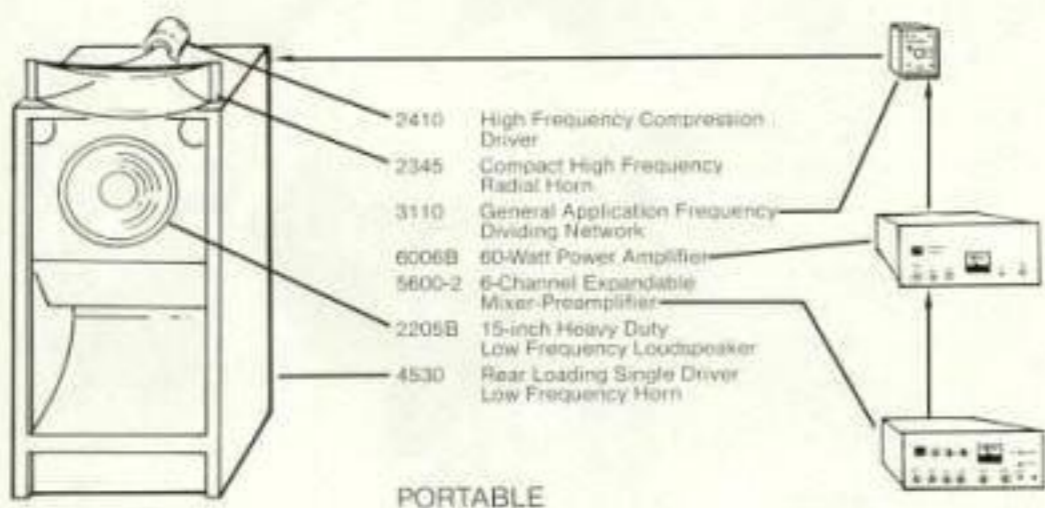
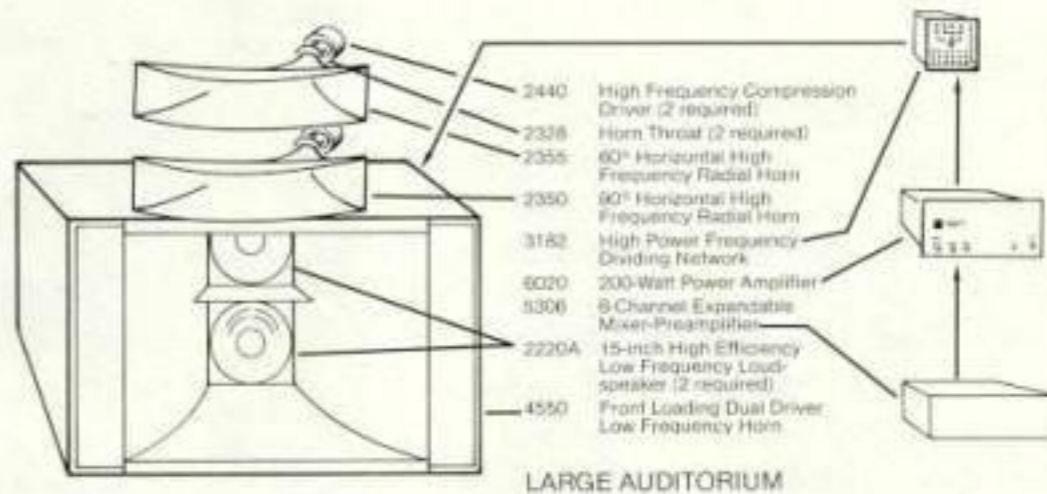
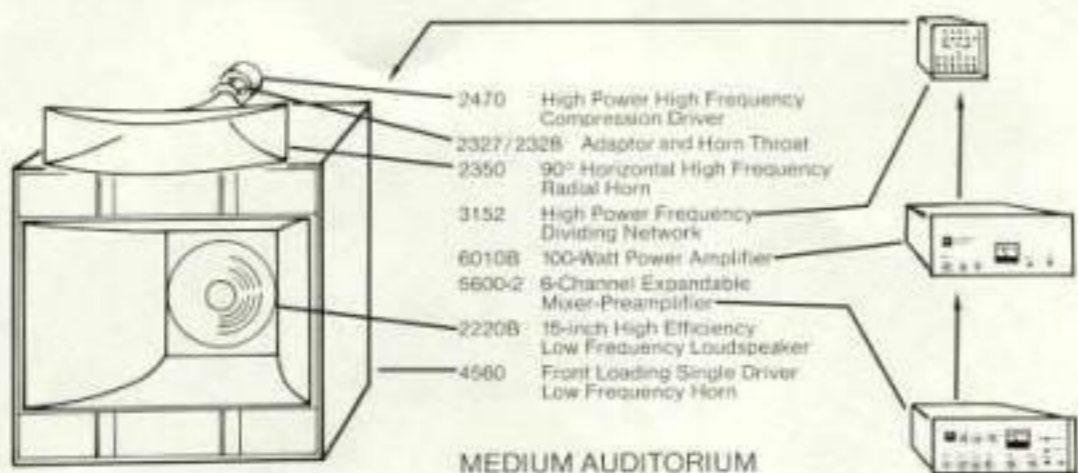
¹ When the 2205 is used in a 4550 or 4560 low frequency horn, some unloading of the driver cone will be experienced at very low frequencies. Power usage, therefore, should be somewhat more conservative than normally specified for the 2205.





Flexibility—a necessity for professional installations. Every professional sound installation is unique: some routine, some difficult and some almost impossible. JBL Professional Series equipment is engineered to provide the required flexibility, reliability and ease of installation for any acoustic environment. Possible combinations of JBL components are as numerous as the required solutions.

The systems shown here are a few suggestions for specific applications.



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 inconspicuous distributed ceiling installations for natural sounding paging systems or band-limited music reproduction. The 2105 is also useful as a midrange driver in medium efficiency monitor systems. Frequency range is 150 to 15,000 Hz.

2115 8-INCH FULL RANGE

Smooth, uncolored, natural wide-range performance with peak-free response and freedom from distortion through more than eight octaves in ported enclosures as small as 1.5 cubic feet (42.5 liters) internal volume. The 2115 can be used in distributed music and paging systems, as a single-unit monitor or in column array for moderate level, high quality reinforcement. Frequency range of the 2115 is 40 to 15,000 Hz.

2145 12-INCH

COMPOSITE TRANSDUCER

An integrated coaxial system consisting of a 12-inch low frequency loudspeaker, separate 2-inch high frequency direct radiator and a 3000-Hz frequency dividing network mounted on a single structure. The 2145 is often used as a moderately priced monitor system in limited space applications. Its shallow frame allows installation within wall or ceiling structures for highest quality distributed paging and music systems. Frequency range is 40 to 15,000 Hz; dispersion is 90° conical.

2150 15-INCH

COMPOSITE TRANSDUCER

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 3125, a 1200-Hz network, is optional.) Frequency range is 50 to 12,000 Hz with 90° conical dispersion. The 2150 may be installed in ported enclosures or in low frequency horns.



	2105	2115	2145	2150
Nominal Diameter	5 in 13 cm	8 in 20 cm	12 in 30 cm	15 in 38 cm
Low Frequency			2 in 5 cm	5 in 13 cm
High Frequency				
Nominal Impedance	8 ohms	16 ohms	8 ohms	8 ohms
Power Capacity (Continuous Program)	40 Watts	40 Watts	35 Watts	50 Watts
EIA Sensitivity*	46.5 dB	43 dB	43 dB	51 dB
Frequency Range	150-15k Hz	40-15k Hz	40-15k Hz	50-12k Hz
Nominal Free Air Resonance	200 Hz	45 Hz	25 Hz	55 Hz
Voice Coil Diameter	3/8 in 2.2 cm	2 in 5.1 cm	3 in 7.6 cm	4 in 10.2 cm
Low Frequency			3/8 in 1.6 cm	3/8 in 2.2 cm
High Frequency				
Voice Coil Material	Copper	Aluminum	Copper	Copper
Low Frequency			Copper	Copper
High Frequency				
Magnetic Assembly Weight	2 3/4 lbs 1.2 kg	6 3/4 lbs 3.0 kg	6 1/2 lbs 3.1 kg	12 1/2 lbs 5.7 kg
Low Frequency			1 1/2 lbs 0.7 kg	2 3/4 lbs 1.2 kg
High Frequency				
Flux Density (Gauss)	16,500	8,500	10,400	11,500
Low Frequency			12,000	16,500
High Frequency				
Recommended Enclosure Volume	0.2 cu. ft. 6 liters	1-2 cu. ft. 28-57 liters	2-3 cu. ft. 57-85 liters	6 cu. ft. 170 liters
Depth	3 3/8" 7.9 cm	3 3/8" 9.8 cm	4 3/8" 11.1 cm	5 3/8" 14.6 cm
Net Weight	3 lbs 1.4 kg	8 lbs 3.6 kg	10 lbs 4.5 kg	15 1/2 lbs 7.2 kg

* Sensitivity of the 2145 and 2150 is measured at 30 feet (9.1 m) with a 1-mW input warbled from 500 to 2500 Hz.



	2110	2120	2125	2130	2135
Nominal Diameter	8 in 20 cm	10 in 25 cm	12 in 30 cm	12 in 30 cm	15 in 38 cm
Nominal Impedance	8 ohms	8 ohms	8 ohms	8 ohms	8 ohms
Power Capacity (Continuous Program)	20 Watts	60 Watts	50 Watts	100 Watts	100 Watts
EIA Sensitivity	48 dB	49 dB	49 dB	52 dB	54 dB
Frequency Range	60-10k Hz	50-8k Hz	50-8k Hz	50-8k Hz	40-8k Hz
Nominal Free Air Resonance	55 Hz	65 Hz	48 Hz	58 Hz	40 Hz
Voice Coil Diameter	2 in 5.1 cm	3 in 7.6 cm	3 in 7.6 cm	4 in 10.2 cm	4 in 10.2 cm
Voice Coil Material	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum
Magnetic Assembly Weight	3½ lbs 1.6 kg	6½ lbs 3.0 kg	6½ lbs 3.1 kg	13 lbs 5.9 kg	13 lbs 5.9 kg
Flux Density (Gauss)	9,000	10,200	10,400	12,000	12,000
Recommended Enclosure Volume	2-3 cu. ft. 57-85 liters	3-4 cu. ft. 85-113 liters	1½-3 cu. ft. 43-85 liters	3-6 cu. ft. 85-170 liters	4-6 cu. ft. 113-170 liters
Depth	3¾" 7.9 cm	4¾" 11.1 cm	4¾" 10.5 cm	5" 12.7 cm	5¾" 14.6 cm
Net Weight	4½ lbs 2.0 kg	8½ lbs 3.7 kg	10 lbs 4.5 kg	15 lbs 6.8 kg	16½ lbs 7.5 kg

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 with the appropriate horn and acoustic lens.

JBL extended range loudspeakers incorporate precisely machined, highly efficient magnetic assemblies; large edgewound aluminum voice coils; and shallow, curvilinear cones. Pneumatically formed aluminum center domes provide high frequency reproduction and dispersion.

Characterized by exceptional clarity, transient response and acoustic efficiency, JBL extended range loudspeakers can handle sustained signals at high power levels without danger of mechanical damage or overheating.



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, JBL low frequency loudspeakers utilize 4-inch edgewound copper ribbon voice coils individually wound and assembled to heat resistant supports, and heavy, precisely constructed magnetic structures that concentrate all the potential of a large Alnico V magnet in the voice coil gap.

2290 PASSIVE RADIATOR

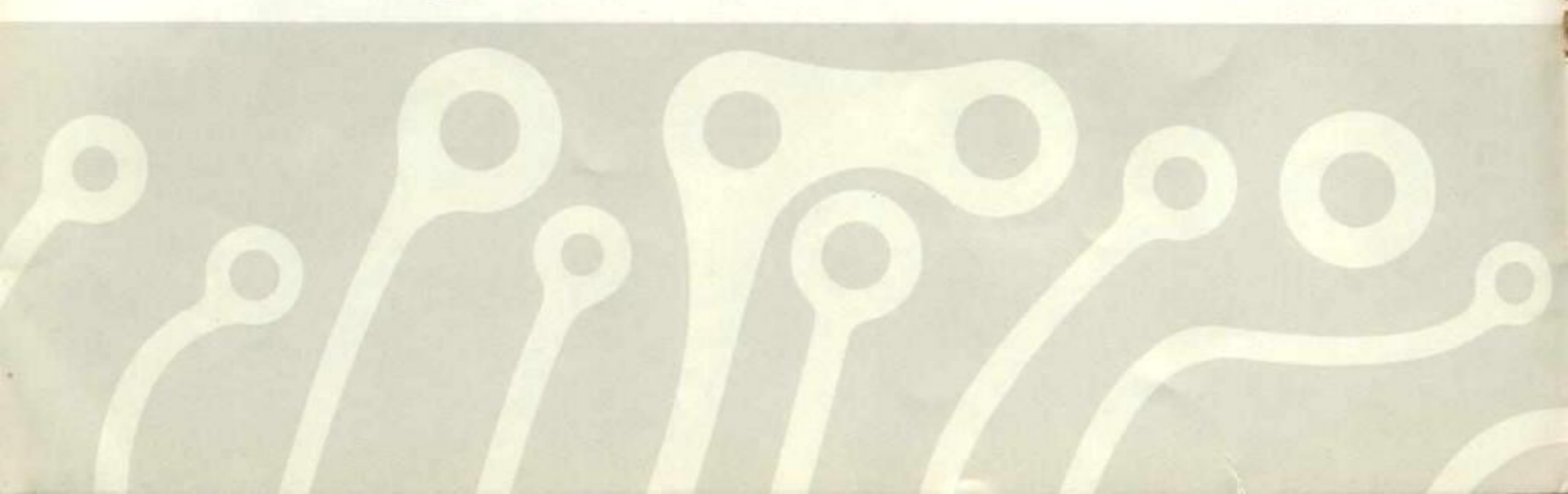
The 2290 is a 15-inch passive radiator consisting of a freely suspended cone assembly with carefully controlled mass and compliance. The 2290 is designed for use with the 2205 or 2215 in a 5- to 8-cubic foot (142 to 227 liters) closed enclosure. The passive radiator utilizes back radiation from the driver to increase bass response below 150 Hz, reduce distortion and heighten dynamic range. A passive radiator is particularly recommended for wide range, low-distortion music reproduction systems. Nominal diameter is 15 inches (38 cm), depth is 3 3/8 inches (8.6 cm) and net weight is 3 1/2 lbs (1.6 kg).



	2202	2205	2215	2216	2220	2230		2202	2205	2215	2216	2220	2230
Nominal Diameter	12 1/4 in 30 cm	15 in 38 cm	15 1/4 in 38 cm	15 in 38 cm	15 in 38 cm	15 in 38 cm	Magnetic Assembly Weight	13 lbs 5.9 kg	13 lbs 5.9 kg	20 1/4 lbs 9.2 kg	20 1/4 lbs 9.2 kg	13 lbs 5.9 kg	13 lbs 5.9 kg
Nominal Impedance	8 ohms	8, 16, or 32 ohms	8 or 16 ohms	4 ohms	8, 16 or 32 ohms	8 ohms	Flux Density (Gauss)	12,000	11,500	11,000	11,000	12,000	12,000
Power Capacity (Continuous Program)	100 Watts	150 Watts	150 Watts	150 Watts	100 Watts	100 Watts	Recommended Enclosure Volume	4-6 cu. ft. 113-170 liters	6-8 cu. ft. 170-227 liters	6-8 cu. ft. 170-227 liters	6-8 cu. ft. 170-227 liters	6-10 cu. ft. 170-283 liters	4-6 cu. ft. 113-170 liters
Sensitivity ¹	47 dB	47 dB	45 dB	47 dB	52 dB	44 dB	Depth	4 3/8" 12.4 cm	5 3/8" 14.6 cm	5 3/8" 14.9 cm	5 3/8" 14.9 cm	5 3/8" 14.9 cm	5 3/8" 14.6 cm
Frequency Range	60-4k Hz	30-2k Hz	35-1.2k Hz	35-1.2k Hz	40-2k Hz	30-1k Hz	Net Weight	15 lbs 6.8 kg	16 1/2 lbs 7.5 kg	23 1/2 lbs 10.7 kg	23 1/2 lbs 10.7 kg	17 lbs 7.7 kg	16 1/2 lbs 7.5 kg
Highest Recommended Crossover Frequency	1200 Hz	800 Hz	800 Hz	800 Hz	800 Hz	800 Hz	1 The sensitivity rating of JBL low frequency loudspeakers is based on a signal warbled 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.						
Nominal Free Air Resonance	50 Hz	25 Hz	20 Hz	24 Hz	37 Hz	16 Hz							
Voice Coil Diameter	4 in 10.2 cm	4 in 10.2 cm	4 in 10.2 cm	4 in 10.2 cm	4 in 10.2 cm	4 in 10.2 cm							
Voice Coil Material	Copper	Copper	Copper	Copper	Copper	Copper							

CUT-OUT DIA. 11 1/16

13 31/32





	2405
Horn Mouth	3.125x0.725 in 7.9x1.8 cm
Nominal Impedance	16 ohms
Power Capacity (Continuous Program)	20 Watts
Sensitivity ¹	56 dB
Frequency Range	6500-21,500 Hz
Dispersion ² (Horizontal x Vertical)	90° x 30° at 16 kHz 65° x 25° at 20 kHz
Lowest Recommended Crossover Frequency	7000 Hz
Voice Coil Diameter	1 3/8 in 4.4 cm
Voice Coil Material	Aluminum
Magnetic Assembly Weight	3 1/2 lbs 1.5 kg
Flux Density (Gauss)	16,500
Baffle Cutout Diameter	3 1/8" 7.9 cm
Diameter	3 1/8" 9.8 cm
Depth	3 1/8" 8.3 cm
Net Weight	4 1/2 lbs 2.0 kg

1. The measured sensitivity represents the SPL achieved at 30 feet (9.1 m) with a 1-mW input warbled from 7000 to 20,000 Hz.

2. Widest dispersion is in the plane perpendicular to the length of the horn opening.

3. Note: As specified by recognized standards organizations, sensitivity is measured with the driver coupled to a terminated tube. The JBL sensitivity rating represents the SPL at the end of a 1-inch diameter tube with a 1-mW input signal (0.126 volts into 16 ohms) warbled from 500 to 2500 Hz. See the specifications on page 8 for the sensitivity of drivers when used with JBL high frequency horns.

	2410	2420	2440
Horn Throat Diameter	1 in 2.5 cm	1 in 2.5 cm	2 in 5.1 cm
Nominal Impedance	16 ohms	16 ohms	16 ohms
Power Capacity (Continuous Program)	30 Watts	30 Watts	60 Watts
Sensitivity ³	117 dB	118 dB	118 dB
Frequency Range	500-15k Hz	500-20k Hz	500-12k Hz
Lowest Recommended Crossover Frequency	500 Hz	500 Hz	500 Hz
Voice Coil Diameter	1 1/8 in 4.4 cm	1 1/8 in 4.4 cm	4 in 10.2 cm
Voice Coil Material	Aluminum	Aluminum	Aluminum
Magnetic Assembly Weight	7 1/2 lbs 3.4 kg	10 lbs 4.5 kg	23 1/2 lbs 10.8 kg
Flux Density (Gauss)	16,000	19,000	20,500
Diameter	4 1/2" 11.4 cm	5 1/2" 14.6 cm	7" 17.8 cm
Depth	3 3/8" 9.8 cm	3 3/8" 9.8 cm	5 1/2" 13.6 cm
Net Weight	8 1/2 lbs 3.7 kg	11 lbs 5.0 kg	24 1/2 lbs 11.3 kg

	2461	2470	2482
Horn Throat Diameter	1 in 2.5 cm	1 in 2.5 cm	2 in 5.1 cm
Nominal Impedance	16 ohms	16 ohms	16 ohms
Power Capacity (Continuous Program)	50 Watts	50 Watts	120 Watts
Sensitivity ³	117 dB	117 dB	118 dB
Frequency Range	500-12k Hz	500-12k Hz	300-6k Hz
Lowest Recommended Crossover Frequency	500 Hz	500 Hz	300 Hz
Voice Coil Diameter	1 1/8 in 4.4 cm	1 1/8 in 4.4 cm	4 in 10.2 cm
Voice Coil Material	Aluminum	Aluminum	Aluminum
Magnetic Assembly Weight	7 1/2 lbs 3.4 kg	10 lbs 4.5 kg	23 1/2 lbs 10.8 kg
Flux Density (Gauss)	16,000	19,000	20,500
Diameter	4 1/2" 11.4 cm	5 1/2" 14.6 cm	7" 17.8 cm
Depth	3 3/8" 9.8 cm	3 3/8" 9.8 cm	5 1/2" 13.6 cm
Net Weight	8 1/2 lbs 3.7 kg	11 lbs 5.0 kg	24 1/2 lbs 11.3 kg

High Frequency Drivers

JBL Professional Series compression drivers provide clear, crisp, natural reproduction of speech and music. They utilize Alnico V magnets housed in heavy magnetic structures, and large, edge-wound ribbon voice coils. Wide range and ultra-high frequency units feature aluminum alloy diaphragms pneumatically formed and treated to achieve exceptional bandwidth and durability. The high power drivers utilize phenolic diaphragms providing the power handling capacity necessary for applications in which high sound pressure levels must be generated, such as large concerts or outdoor events. Both wide range and high power drivers are constructed so that the waveform is directed from the diaphragm through the concentric channels of a precisely formed phasing plug to the horn mouth. Controlled dispersion is then achieved by a horn or acoustic lens.

2405 ULTRA-HIGH FREQUENCY

Designed to complement JBL high frequency drivers, the 2405 consists of a compression driver and integral diffraction horn providing smooth response and exceptionally wide dispersion, even at extreme high frequencies.

2410, 2420, 2440 WIDE RANGE

JBL wide range compression drivers provide efficiency and wide, linear response for high quality sound reproduction and reinforcement systems. A pure silver ring 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

Intended for use where high sound pressure levels must be generated, 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 maintaining crisp, natural reproduction of speech.

Frequency Dividing Networks

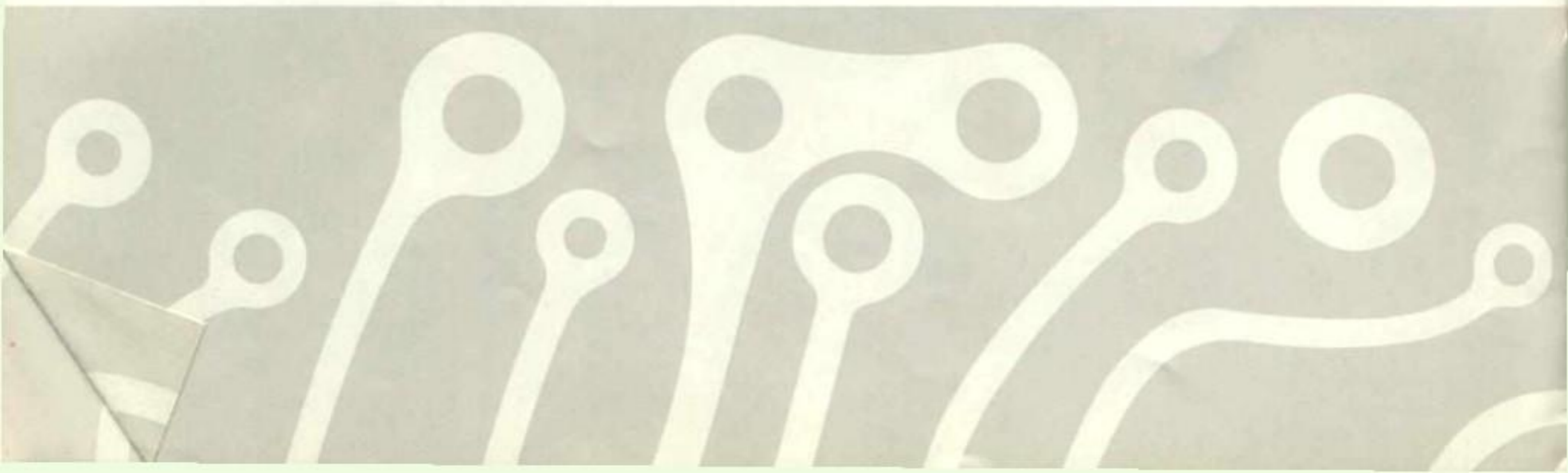
HIGH LEVEL, PASSIVE

JBL Professional Series 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 out 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 is accomplished with tapped autotransformers rather than conventional pads. The 3105, 3110, 3115, 3120 and 3125 are general application networks. The 3152 and 3182 are high power networks designed primarily for theater, auditorium or reinforcement installations.



Model	Crossover Frequency	Power Capacity (Continuous Program)	Impedance		High Frequency Attenuation
			Low Frequency	High Frequency	
3105	7000 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

General application networks (models 3105, 3110, 3115, 3120 and 3125) mount in a 4 $\frac{1}{4}$ " x 5 $\frac{1}{2}$ " (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.





Crossover Cards For The 5231 And 5232

Model	Use
52-5120 ¹	Blank
52-5122	500 Hz
52-5123	800 Hz
52-5127	7000 Hz for use with the 2405 ultra-high frequency driver
52-5130	For use with the 4330 and 4332 studio monitors
52-5140	For use with the 4340 studio monitor
52-5150	For use with the 4350 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 the following frequencies: 900 Hz, 1100 Hz, 1200 Hz, 1500 Hz, 2000 Hz, 2500 Hz, 5000 Hz, 6000 Hz, 7000 Hz and 9500 Hz. Specific resistor and capacitor values are given in the technical manual supplied with the 5231 and 5232.

LOW LEVEL, ACTIVE

JBL electronic frequency dividing networks are designed for use in studio monitor or sound reinforcement applications in which bi-amplification or tri-amplification is desirable. The 5231 is intended for bi-amplification of a two-way loudspeaker system. The 5232, a dual channel unit, may 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 with high and low frequency output attenuated 3 dB at the crossover point, unbalanced high impedance inputs, unbalanced low impedance outputs, THD less than 0.5% 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. Crossover cards are available for the two most common crossover frequencies; in addition, a blank card is also available for construction of cards for other alternate crossover frequencies.

Either unit mounts in 1 EIA standard rack space. Net weight and dimensions are the same for both units: 4 lbs (1.8 kg), 1¾" x 19" x 7¾" deep (4.4 x 48.3 x 19.4 cm deep).



High Frequency Horns

RADIAL

The 2340, 2345, 2350, 2355 and 2356 are radial horns offering natural tone quality and exceptionally uniform frequency response in a tightly controlled pattern. They have no discontinuities; the waveform expands smoothly through a single, unobstructed path. The 2356, largest of the group, utilizes non-metallic composite construction to achieve freedom from resonance while minimizing weight. The other radial horns are cast aluminum with thick wall sections to prevent flexing. Exterior surfaces of the aluminum horns are coated with a heavy layer of an exclusive damping material, Lansaplas, to further guard against coloration or ringing. In general, these radial horns produce the effortless, natural quality of JBL horn/lens combinations, but with much tighter pattern control. All the radial horns are suitable for outdoor use.

DIFFRACTION

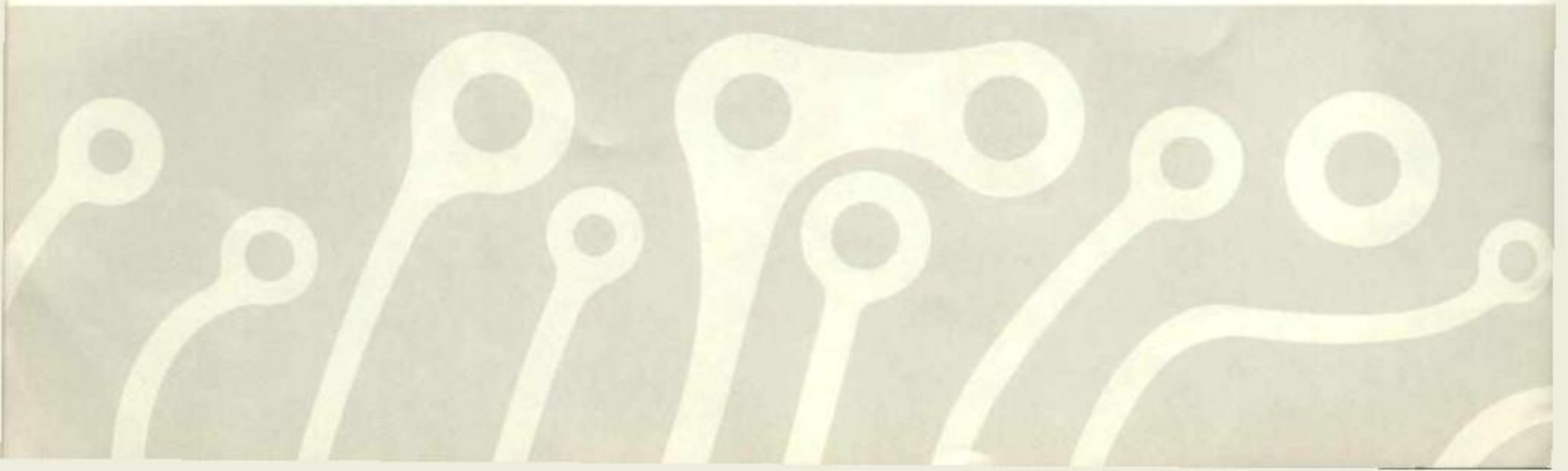
The 2397 is a diffraction horn providing an exceptionally wide, controlled pattern for applications in which a lens is not desirable. Its dispersion is accomplished by conducting the waveform through six parallel exponential horns and distributing it through a single bell. Constructed of dense wood and originally designed for theater use, the 2397 is noted for its smooth, transparent sound character. It has been used with great success in custom designed control room monitor applications.



Model	Type	Dispersion Pattern (Horizontal x Vertical)	Crossover Frequency	Sensitivity ¹	Entry Diameter Or Throat Required ²	Dimensions (Height x Width x Depth)	Net Weight
2340	Radial, right angle	80° x 60°	1200 Hz	59 dB	1 in. 2.5 cm	8 1/2" x 8 3/4" x 8 3/4" 20.6 x 21.3 x 21.2 cm	4 1/2 lbs 2.0 kg
2345	Radial	90° x 40°	800 Hz	62 dB	1 in. 2.5 cm	6 1/2" x 22 1/2" x 15 1/2" 17.1 x 56.8 x 39.1 cm	14 1/2 lbs 6.6 kg
2350	Radial	90° x 40°	500 Hz	62 dB	2328 or 2329	8" x 31 1/2" x 20" 20.3 x 80.3 x 50.8 cm	25 1/2 lbs 11.6 kg
2355	Radial	60° x 40°	500 Hz	65 dB	2328 or 2329	8" x 24 1/2" 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	2 in. 5.1 cm	16 1/2" x 33" x 48 1/2" 41.9 x 83.8 x 123.8 cm	24 1/2 lbs 11.2 kg
2397	Diffraction	140° x 60° 140° x 30° baffled	800 Hz	59 dB	2328 or 2329	3 1/2" x 26" x 13 1/2" 9.5 x 66.0 x 34.0 cm	9 1/2 lbs 4.4 kg

1. The sensitivity quoted for each horn is the SPL measured on axis at 30 feet (9.1 m) with a 1-mW input signal (0.126 volts into 16 ohms) warbled from the lowest recommended crossover frequency to 2500 Hz, with any JBL driver.

2. 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 (described on page 18) will accept one or two 2-inch drivers respectively. The 2327 adaptor can be bolted to the throat if it is desirable to substitute 1-inch drivers.



High Frequency Horn/ Lens Assemblies

2305 PERFORATED PLATE

The 2305 is intended for use in integrated systems in which the length of throw will not exceed 30 feet (9.1 m). The lens consists of a series of circular perforated plates providing a conical distribution pattern. The unit flush mounts in the enclosure from behind the baffle panel and is held in place by the clamp ring provided.

2390 20-INCH FOLDED PLATE (51 cm)

The complex appearance of the lens used in the 2390 is the result of folding the plates in a series of 45° planes to reduce depth. The horizontal pattern is determined by the shape of the plates; vertical dispersion is closely controlled by the flare of the rectangular exponential horn. The lens requires a baffle to function properly in the crossover region; if not mounted in an enclosure, a baffle panel at least 20" (51 cm) on each side must be provided between the lens and the horn.

2391 10-INCH SLANT PLATE (25 cm)

The 2391 horn with slant-plate acoustic lens is intended for short-throw applications, less than 30 feet (9.1 m). The lens must be mounted in an enclosure or on a baffle panel measuring at least 12 inches (30 cm) on each side. The lens requires 2 1/2" (6.7 cm) clearance between the enclosure baffle panel and grille.

2392 10-INCH SLANT PLATE (25 cm)

The 2392 utilizes the same acoustic lens as the 2391 with a shorter horn that accommodates a 2-inch driver. Performance and mounting parameters are identical to those of the 2391.

2395 36-INCH SLANT PLATE (91 cm)

The 2395 provides an exceptionally wide pattern for dispersion of midrange and high frequency program material. Its horizontal dispersion is determined by the shape of the lens plates; vertical dispersion is closely controlled by the 12-inch elliptical horn. The 2395 is provided with brackets for free-standing installation.

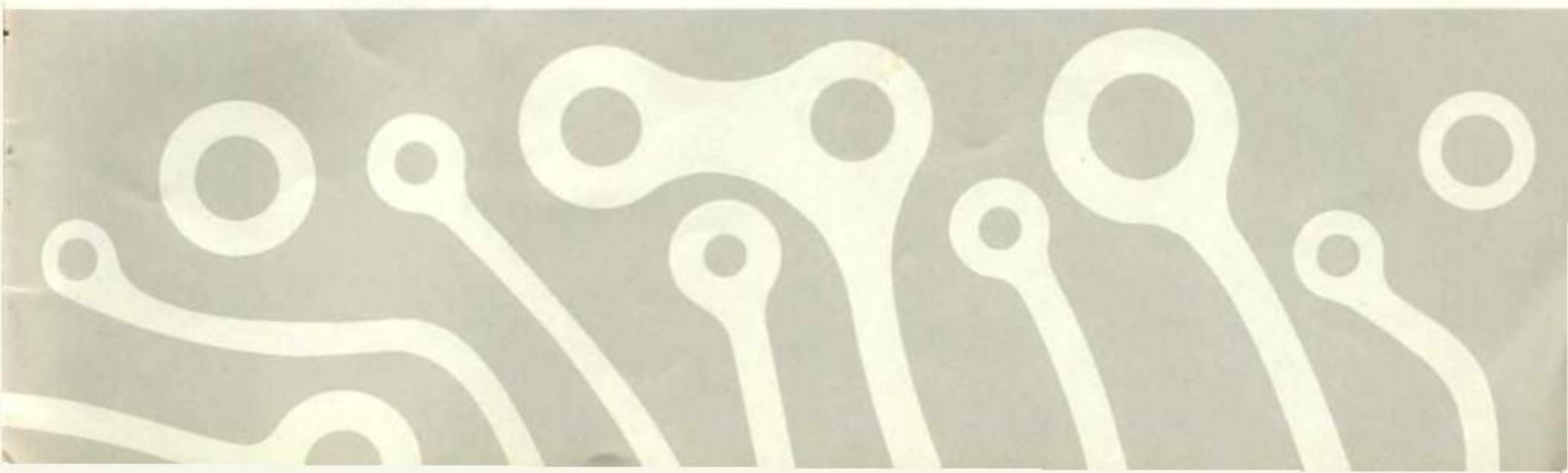


Model	Type	Dispersion Pattern (Horizontal x Vertical)	Crossover Frequency	Sensitivity ¹	Entry Diameter ²	Dimensions (Height x Width x Depth)	Baffle Cutout Diameter	Net Weight
2305	Perforated Plate	90° conical	1200 Hz	60 dB	1 in 2.5 cm	5 1/4" (13.6 cm) diameter x 7 3/4" (19.7 cm) length	5 1/4" 13.3 cm	3 1/2 lbs 1.4 kg
2390	Folded Plate	100° x 45°	800 Hz	58 dB	2 in 5.1 cm	7 1/2" x 10 1/2" x 12" 19.1 x 26.7 x 30.5 cm 7" x 19 1/2" x 4 1/2" 17.8 x 50.5 x 11.8 cm	6" x 9" 15.2 x 22.9 cm	11 lbs 5.0 kg
2391	Slant Plate	80° x 45°	800 Hz	59 dB	1 in 2.5 cm	6 1/4" (15.6 cm) diameter x 8 1/2" (21.6 cm) length 6 1/4" x 10" x 2 1/2" 15.6 x 25.4 x 6.3 cm	4 1/4" 10.8 cm	2 1/2 lbs 1.1 kg
2392	Slant Plate	80° x 45°	800 Hz	59 dB	2 in 5.1 cm	6 1/4" (15.6 cm) diameter x 4 1/2" (11.7 cm) length 6 1/4" x 10" x 2 1/2" 15.6 x 25.4 x 6.3 cm	4 1/4" 10.8 cm	2 1/2 lbs 1.1 kg
2395	Slant Plate	140° x 45°	800 Hz ³	59.5 dB	2 in 5.1 cm	15" x 36" x 18 1/2" 38.1 x 91.4 x 47.6 cm	Free-standing, brackets supplied	25 1/2 lbs 11.6 kg

1. The sensitivity quoted for each horn/lens combination is the SPL measured on-axis at 30 feet (9.1 m) with a 1-mW input signal (0.126 V into 16 ohms) warbled from the lowest recommended crossover frequency to 2500 Hz, with any JBL driver.

2. The entry diameter of a horn indicates the corresponding horn mouth diameter of the JBL compression driver that will bolt directly to the unit. The 2-inch entry of the 2390 or 2395 can be reduced to accommodate 1-inch drivers by using the 2327 adaptor.

3. 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.



JBL horn/lens assemblies, designed according to advanced sound wave propagation theory, provide wide dispersion and uniform frequency response. Their "soft edge" pattern is particularly well suited to high quality music reproduction and short-throw reinforcement applications.

JBL exponential horns are massive aluminum castings that function without adding resonance or distortion. The internal taper of the horn causes the wavefront generated by a compression driver to expand gradually at a controlled rate, thus loading the driver diaphragm. The horn taper rate is responsible for the vertical dispersion pattern of the horn/lens assembly.

The acoustic lens functions in a manner analogous to a divergent optical lens. It consists of a series of physical barriers designed to increase the distance traveled by the energy at the edges of the wavefront while energy toward the center of the wave is relatively unaffected. The specific horizontal distribution pattern of the horn/lens assembly is a function of the configuration of the barriers making up the acoustic lens and the taper rate of the horn. The wavefront passing through the lens continues traveling in its original direction.

Horn Adaptors

2327 ADAPTOR

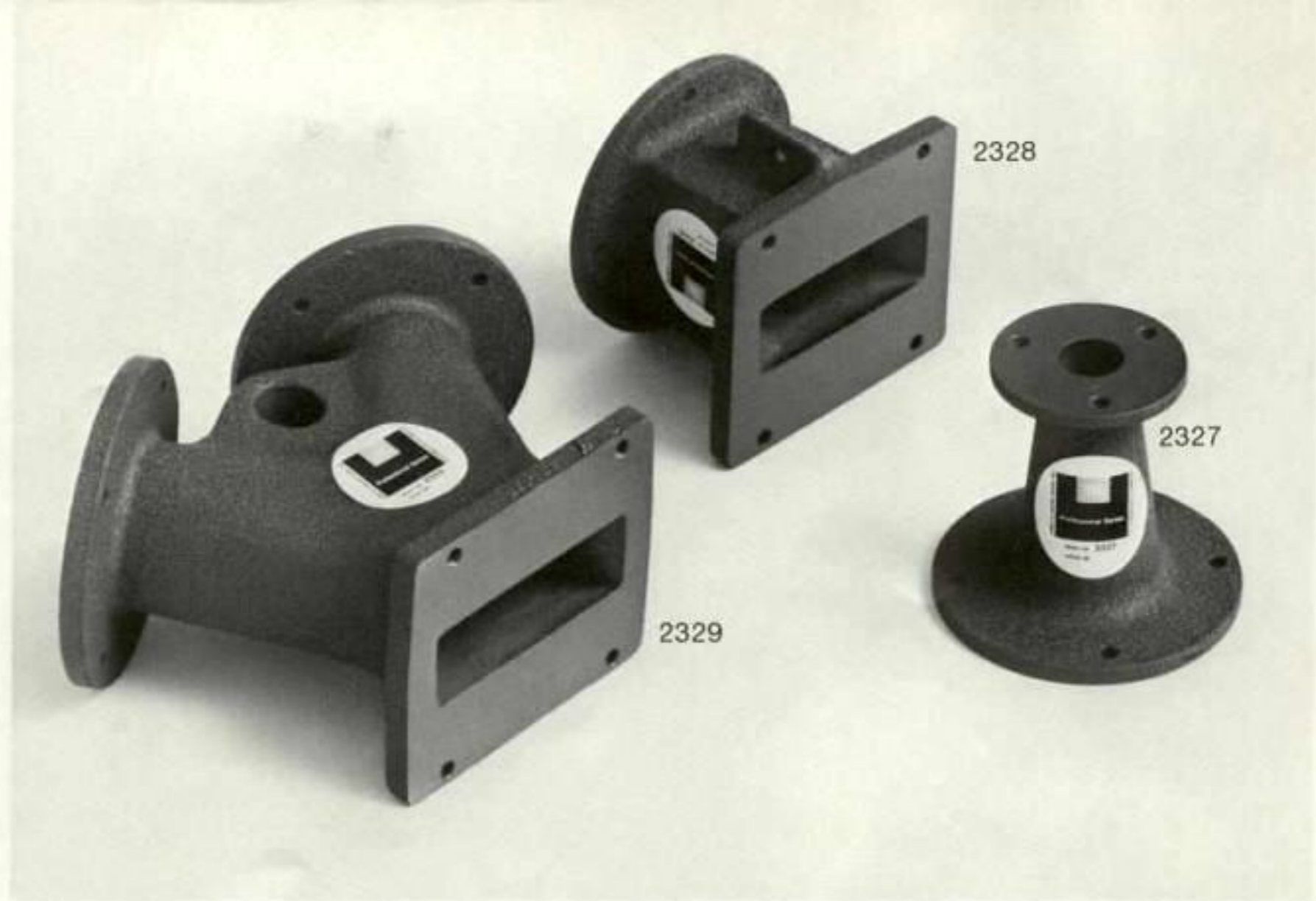
Tapered for 2-inch horn entry to 1-inch driver. May be used in reverse with some loss above 8 kHz. Length: 4 $\frac{1}{8}$ " (10.5 cm).

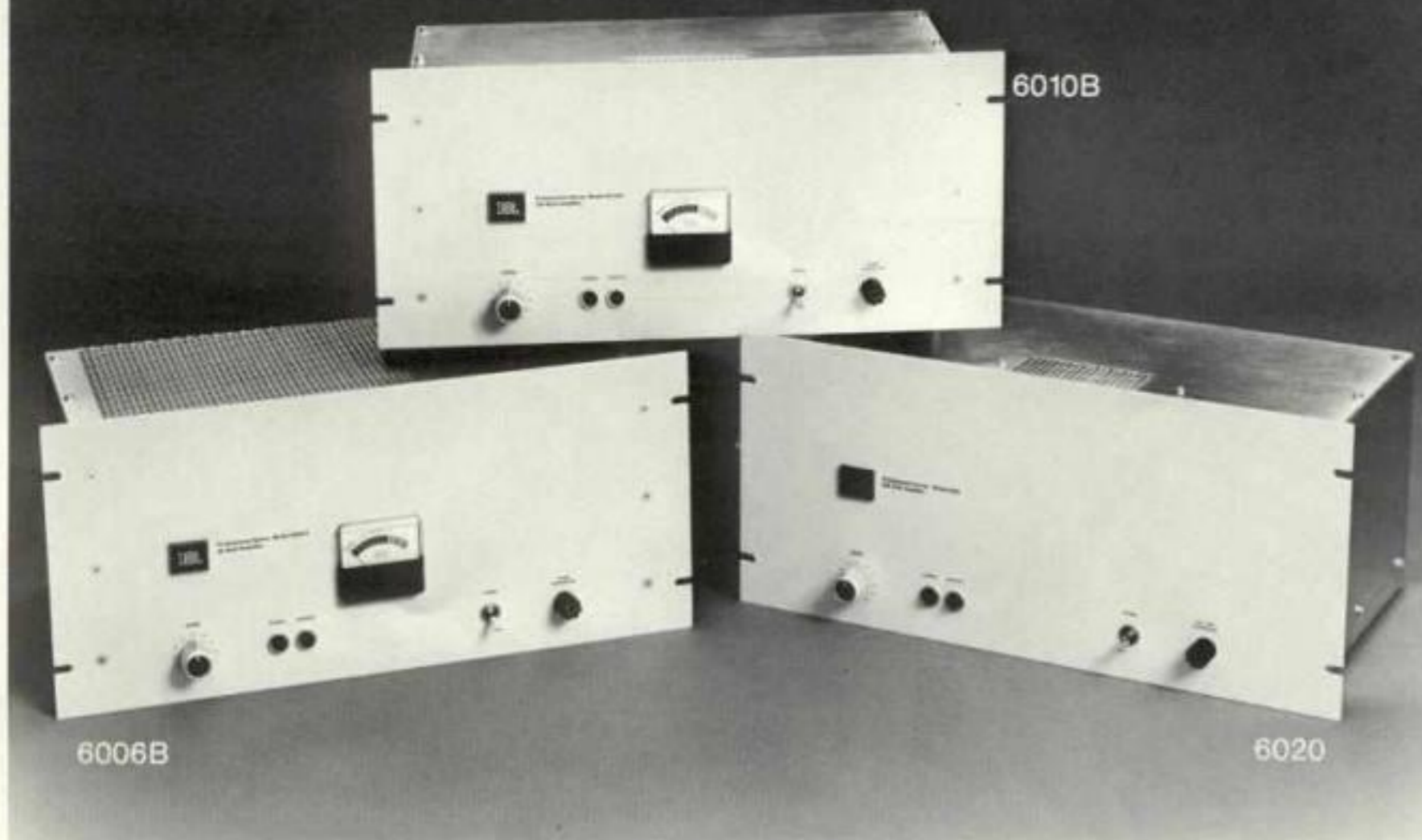
2328 HORN THROAT

Throat section required to mount a 2-inch driver on the 2350, 2355 or 2397 horn. The casting includes an eye for suspending the horn and driver assembly. Length: 3 $\frac{3}{8}$ " (9.8 cm).

2329 DUAL ENTRY HORN THROAT

Throat section required to mount a pair of 2-inch drivers on the 2350, 2355 or 2397 horn. The casting includes a suspension hole. Length: 7 $\frac{1}{2}$ " (18.3 cm).





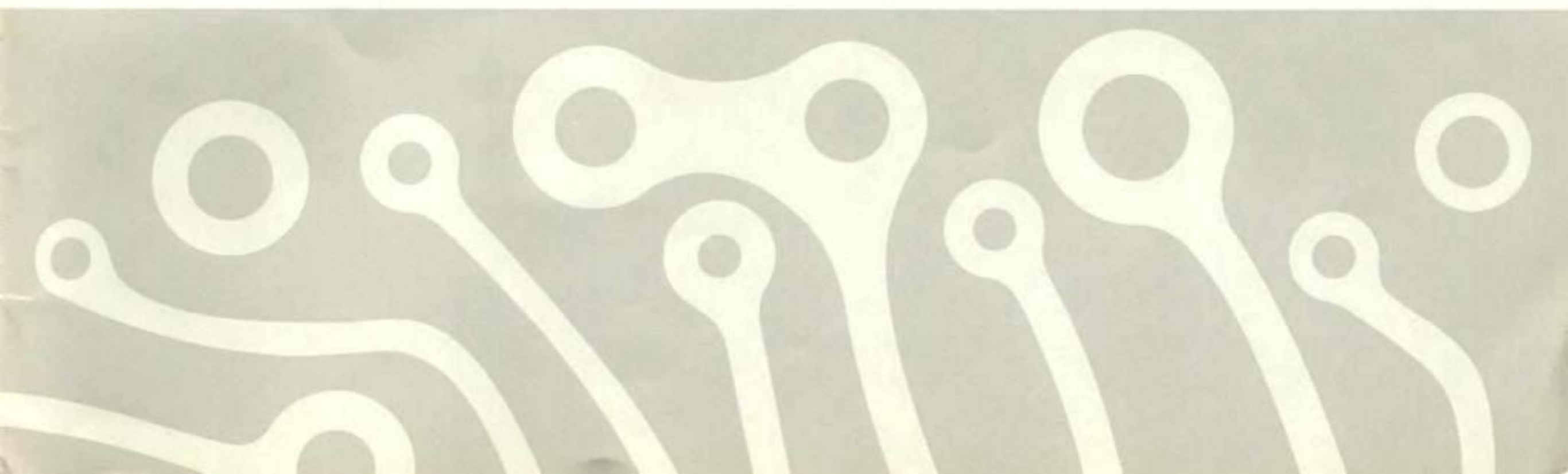
	6006B	6010B	6020
Sensitivity	0.7 volts	0.7 volts	0.7 volts
Power Output	60 Watts RMS, 40-12k Hz	100 Watts RMS, 40-12k Hz	200 Watts RMS, 35-12k Hz
Total Harmonic Distortion (at rated output)	Less than 1.0%	Less than 1.0%	Less than 0.5%
Intermodulation Distortion			
Less than 2% at	60 Watts RMS	100 Watts RMS	200 Watts RMS
Less than 1% at	10 Watts RMS	10 Watts RMS	10 Watts RMS
Less than 1% at	0.15 Watts RMS	0.15 Watts RMS	0.15 Watts RMS
Signal/Noise Ratio	Better than 85 dB below 60 Watts	Better than 85 dB below 100 Watts	Better than 90 dB below 200 Watts
Transformer Outputs	8 ohms, 16 ohms or 70.7 volts	8 ohms, 16 ohms or 70.7 volts	8 ohms, 16 ohms or 70.7 volts
Direct Output	4 ohms	4 ohms	4 ohms
Net Weight	37 lbs 17 kg	46 lbs 21 kg	56 lbs 25 kg

Power Amplifiers

JBL Professional Series power amplifiers are highly reliable, conservatively rated units for applications in which a high degree of performance and reliability are desired. They are designed for maximum flexibility in varying input and output arrangements. 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. The output transformer has taps for 70.7-volt, 16-ohm or 8-ohm connections. For studio applications, broader bandwidth and reduced distortion levels can be achieved with slight modification of the circuitry (bypassing the output transformer) to obtain a 4-ohm direct output.

Protective circuitry makes it virtually impossible to damage one of these amplifiers under any conditions—including shorted or grossly mismatched load, inductive load at low frequencies, excessive input signal, white noise, thermal overload or installation errors. A switch on the rear panel activates a 250-Hz low cut filter which can be used to reduce the possibility of damaging midrange or high frequency loudspeakers in restricted-bandwidth applications.

The front panel is finished in light gray non-glare baked enamel; each unit measures 8 $\frac{3}{4}$ " x 19" x 10" deep (22.2 x 48.3 x 25.4 cm deep) and mounts in 5 EIA standard rack spaces.



Mixers and Preamplifiers

5101B PREAMPLIFIER

The 5101B is a single-channel microphone preamplifier with an excellent signal-to-noise ratio and low distortion characteristics. The input of the 5101B properly loads high impedance microphones. Low impedance microphones can be accommodated by installing an accessory microphone input transformer, JBL Model 5901. The maximum output level is +10 dBm unbalanced and is convertible to balanced line by installing an accessory 5195 matching/bridging transformer.

5306 MIXER/PREAMPLIFIER

The 5306 is a solid state mixer/pre-amplifier with inputs for six microphone and two program channels. Each microphone channel is provided with an indicator light that flashes just before the onset of input overload. Since the indicator becomes operative before distortion reaches audible levels, the operator has ample warning to make adjustments. The wide dynamic range of the 5306 results from feedback-type level controls in the microphone and master preamp circuits.

Channels 1 through 6 properly load microphones having an impedance between 50 and 600 ohms. The microphone input transformers and an output transformer are included. Both program channels will accept a tuner, tape deck or similar line level source. Program channel impedance is 50,000 ohms unbalanced and is convertible to 600-ohm balanced bridging by inserting an accessory plug-in transformer, JBL Model 5196. Program Channel 1 can be adapted to accept a magnetic phono cartridge by installing the 5192 magnetic phono preamp module. A separate monitor circuit, accessible at the front or rear of the unit and having its own gain control, can be used for an auxiliary amplifier, high impedance headphones, or as an alternate output.



5101B



5306

5101B	
Gain	75 dB
Maximum Output Level	+10 dBm
Frequency Response	20-20,000 Hz, ± 1 dB
Total Harmonic Distortion	Less than 0.25%
Intermodulation Distortion	Less than 1.0%
Equivalent Input Noise	-122 dBm, unweighted
Panel Finish	Non-glare baked enamel, light gray
Dimensions	1 $\frac{3}{4}$ " x 19" x 5 $\frac{1}{2}$ " deep (4.4 x 48.3 x 14.0 cm deep)
Mounting	1 EIA standard rack space
Net Weight	5 $\frac{1}{2}$ lbs 2.6 kg

5306	
Gain	
Microphone Channels	86 dB
Program Channels	40 dB
Maximum Output Level	+24 dBm
Frequency Response	20-20,000 Hz, ± 1 dB
Total Harmonic Distortion	Less than 0.2% at +18 dBm
Intermodulation Distortion	Less than 0.2% at +18 dBm
Equivalent Input Noise	-125 dBm, unweighted
Microphone Channel Isolation	80 dB
Panel Finish	Non-glare baked enamel, light gray
Dimensions	5 $\frac{1}{4}$ " x 19" x 9" deep (13.3 x 48.3 x 22.9 cm deep)
Mounting	3 EIA standard rack spaces
Net Weight	12 lbs 5.4 kg





5308



5600-2B

5600-2B

Gain	
Microphone Channels	57 dB high impedance 83 dB with 5901
Program Channels	26 dB 30 dB with 5195 wired for bridging 44 dB with 5195 wired for matching +18 dBm
Frequency Response	20-20,000 Hz, ± 1 dB
Total Harmonic Distortion	Less than 0.25%
Intermodulation Distortion	Less than 0.5%
Equivalent Input Noise	-122 dBm, unweighted
Panel Finish	Non-glare baked enamel, light gray
Dimensions	5 $\frac{1}{4}$ " x 19" x 10" deep (13.3 x 48.3 x 25.4 cm deep)
Mounting	3 EIA standard rack spaces
Net Weight	12 $\frac{1}{4}$ lbs 5.6 kg

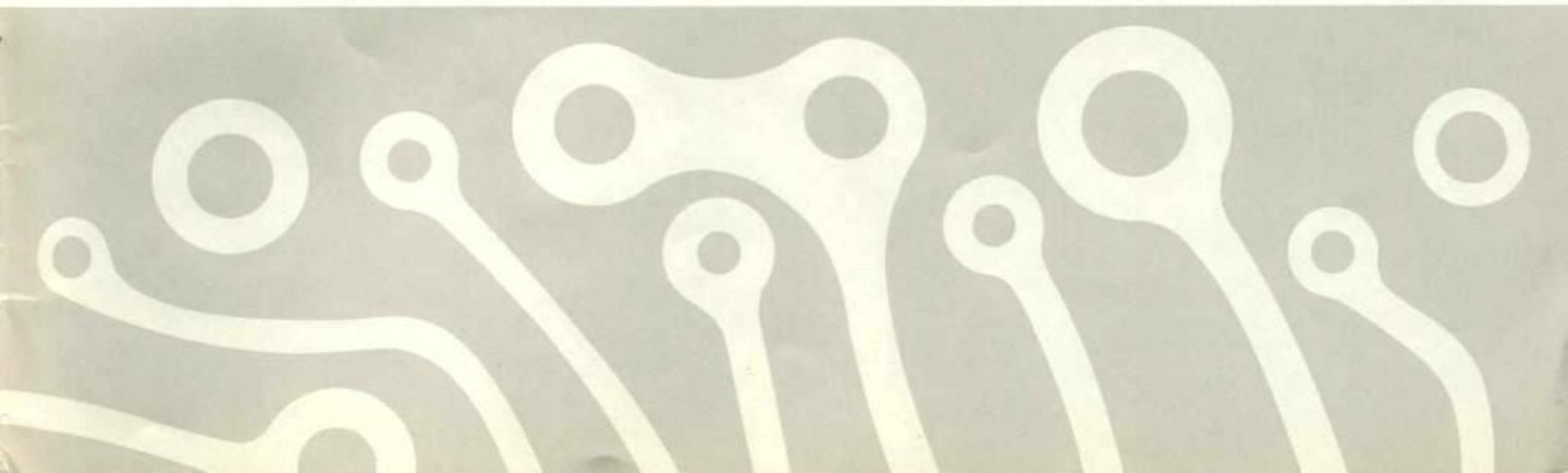
5308 EXPANDER

The microphone input capacity of the 5306 Mixer/Preamplifier can be increased from six to fourteen channels with the addition of a 5308 Expander. Each of the preamplifier circuits used in the 5308 is identical to those of the 5306 and features the same dynamic range and overload indicator for each channel. The expander mounts in two rack spaces, permitting its installation with the mixer in a total of five standard rack spaces. Panel finish is light gray baked enamel, dimensions are 3 $\frac{1}{2}$ " x 19" x 9" deep (8.9 x 48.3 x 22.9 cm deep) and net weight is 10 $\frac{1}{2}$ lbs (4.7 kg).

5600-2B MIXER/PREAMPLIFIER

The 5600-2B is an expandable mixer/preamplifier typically used in conference rooms, churches and PA systems. It will mix four microphone and two program sources. Two additional microphone channels can be added by installing the 5190B Microphone Preamp Expander Module. When the 5190B is installed, the level controls for the two added channels will appear through labeled holes concealed behind the removable cover plate at the upper left-hand corner of the front panel.

All channels will accept an unbalanced high impedance input. The microphone channels may be converted to balanced low impedance operation by installing a 5901 Universal Microphone Input Transformer. The 5904 T-Pad can be installed in the microphone channels to convert them to 50,000-ohm unbalanced program inputs. The two program channels are each provided with a socket to accept a 5195 Matching/Bridging Transformer to provide 15,000-ohm bridging or 600-ohm matching balanced input. The socket will also accommodate a 5191 Magnetic/Phono/Tapehead Preamp. The 5195 can be used to convert the 600-ohm output from an unbalanced to a balanced line. A cue control allows audition through the headphone jack; the VU meter is adjustable from the rear of the unit.



Special Purpose Electronics

7124B AGC AMPLIFIER

The 7124B is a self-contained amplifier used with indoor and outdoor paging systems to maintain a high intelligibility program signal at a predetermined level above background noise. The unit samples ambient noise from a pre-selected area and varies output level accordingly, up to 20 dB. The control circuitry continuously changes program level, eliminating any "stepping" effect. The 7124B installs between the pre-amplifier and power amplifier.

The microphone sensing circuit will accept high impedance dynamic or ceramic microphones. The circuit will accommodate a 5901 microphone input transformer to allow use of a low impedance microphone. A high level, 50,000-ohm unbalanced sensing input is also provided and can be converted to balanced 15,000-ohm bridging or 600-ohm matching operation by installing a 5195 matching/bridging transformer. Maximum output level is +10 dBm; a 5195 can be used if 600-ohm balanced output is desired.

7125 SAFETY MATRIX

The 7125 provides a "fail-safe" method of connecting the 70-volt outputs of two equal amplifiers to a common load for greater reliability. In the event either amplifier fails or becomes subnormal, the 7125 transfers the entire load to the surviving amplifier, load impedance does not change and loss in acoustic output is limited to 3 dB. A failed amplifier is automatically disconnected and can be removed for repair without shutting down the entire system.

When a failed amplifier is restored to operation, by repair or resetting of its thermal fuse, the 7125 resets and indicators are returned to normal status automatically. A "zero" synchronization meter simplifies balancing amplifier outputs. Two relay contacts are provided for adding remote alarm signals, such as bells, buzzers or lights. Front panel finish is light gray non-glare baked enamel; dimensions are 5¼" x 19" x 5¼" deep (13.3x48.3x14.6 cm deep); the unit mounts in 3 EIA standard rack spaces and net weight is 20½ lbs (9.3 kg).



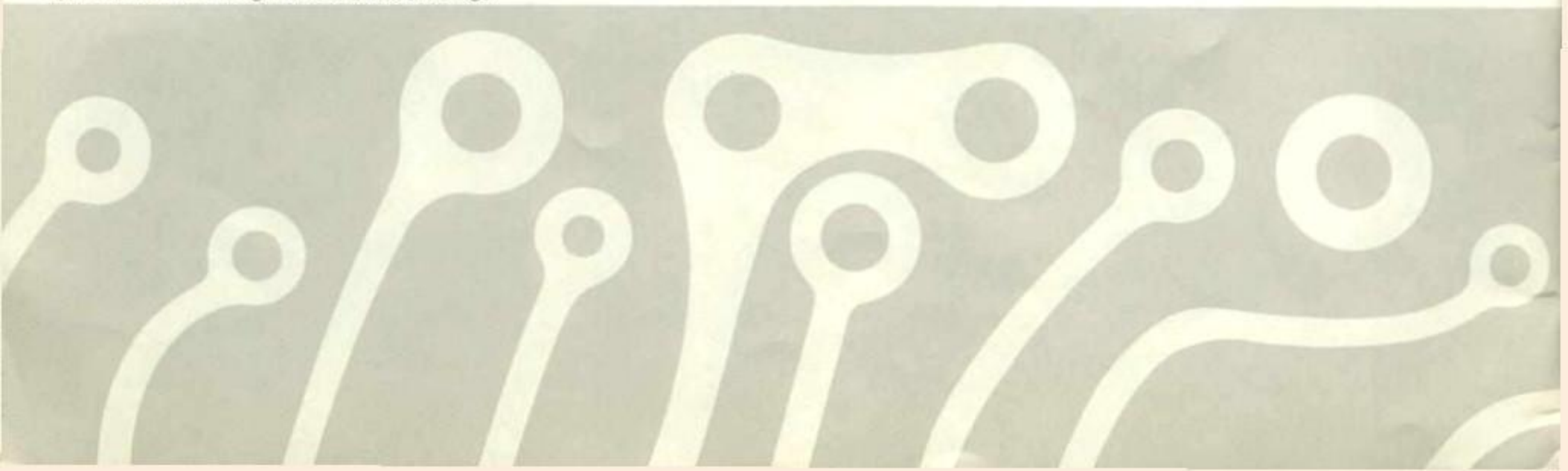
7124B



7125

7124B

Gain	0 dB with full sensing signal -20 dB with no sensing signal
Maximum Output Level	+10 dBm
Frequency Response	20-20,000 Hz, ±1 dB
Attack Time	1 second for 10-dB increase 3 seconds for 20-dB increase
Decay Time	1 second for 10-dB decrease 3 seconds for 20-dB decrease
Panel Finish	Non-glare baked enamel, light gray
Dimensions	3½" x 19" x 6" deep (8.9x48.3x15.2 cm deep)
Mounting	2 EIA standard rack spaces
Net Weight	8 lbs 3.6 kg

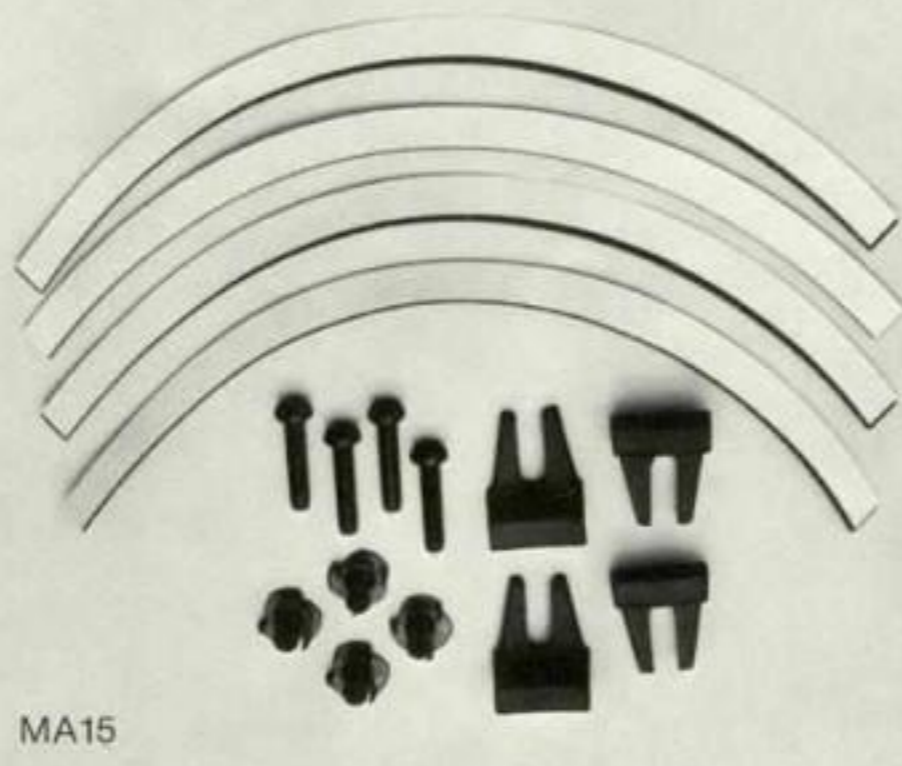




7126B



2505



MA15

Gain, Linear Mode	55 dB high impedance 55 dB low impedance with 5901 45 dB line level with internal modification
Maximum Output Level	+26 dBm
Frequency Response	20 - 20,000 Hz, ± 1 dB
Total Harmonic Distortion	Less than 0.5%
Compression	2:1 or 4:1, selectable
Compression Threshold	0 dBm
Maximum Compression	20 dB
Release Time	0.5 or 1.5 seconds, selectable
Panel Finish	Non-glare baked enamel, light gray
Dimensions	3 $\frac{1}{2}$ " x 19" x 9 $\frac{1}{2}$ " deep 8.9 x 48.3 x 24.4 cm deep
Mounting	2 EIA standard rack spaces
Net Weight	12 $\frac{3}{4}$ lbs 5.8 kg

7126B COMPRESSOR

The 7126B functions as a compressor or line amplifier. A front panel switch permits selection of the linear mode (55 dB of gain) and compression ratios of 2:1 or 4:1, providing versatile dynamic range control for PA installations. Release time is also selectable: 0.5 or 1.5 seconds.

The input accepts a high impedance microphone and can be made to accommodate a low impedance microphone if the 5901 input transformer is installed in a socket provided on the rear panel. The input may also be converted to line level with internal modification. The 7126B will drive a 600-ohm line and is supplied with the required transformer.

Accessories

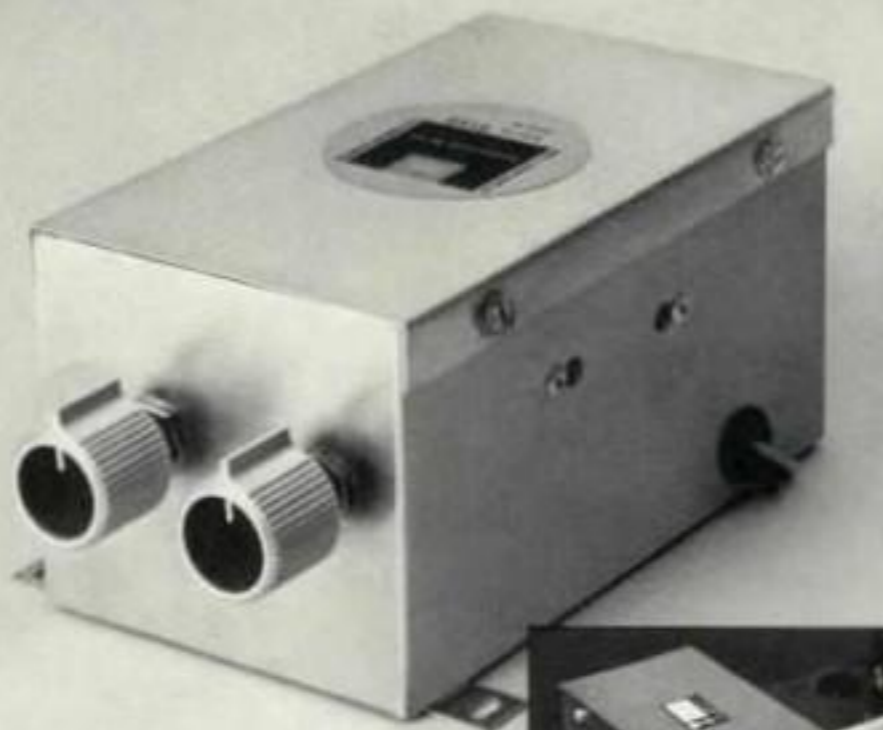
MA15 LOUDSPEAKER MOUNTING KIT
The MA15 simplifies front mounting of JBL Professional Series loudspeakers. Since it permits flexibility in the diameter of the mounting cutout, the MA15 is particularly helpful when utilizing an existing enclosure or baffle panel. The recommended cutout for JBL Professional Series 15-inch loudspeakers is 13 $\frac{3}{32}$ " (35.5 cm), however, the opening can be as large as 14 $\frac{1}{4}$ " (36.3 cm) if the MA15 is used. 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 loudspeakers, but it will be necessary to fashion a custom gasket for such applications.

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 $\frac{1}{16}$ " (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/preamplifier and will accept the 5901 accessory transformer for low impedance microphones. Installation is accomplished with three screws and a five-pin plug. Controls appear through labeled holes concealed behind a removable cover plate on the front panel of the 5600-2B.



5190B

5191 MAGNETIC PHONO/TAPEHEAD PREAMP

For use with the 5600-2B mixer/preamplifier, the 5191 converts the 50,000-ohm unbalanced program inputs to accept a magnetic phono or high-impedance tapehead. The change from magnetic phono to tapehead equalization is accomplished by changing an internal jumper wire in the 5191. Magnetic phono equalization is standard RIAA; tapehead equalization is for 7½ ips (19 cm/second).



5191

5192 MAGNETIC PHONO/TAPEHEAD PREAMP

Provides RIAA equalization for Program Channel 1 of the 5306 mixer/preamplifier.



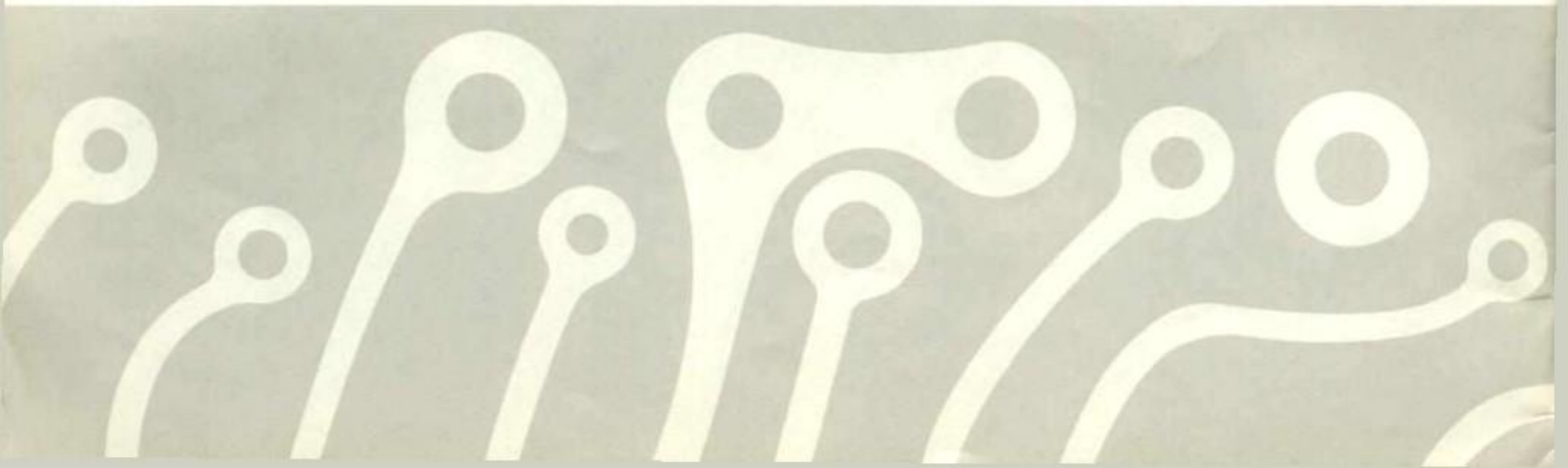
5192

5195 MATCHING/BRIDGING TRANSFORMER

For use with the 6006B, 6010B or 6020 power amplifiers, the 5600-2B mixer/preamplifier and 7124B AGC amplifier; the 5195 provides 15,000-ohm bridging or 600-ohm matching balanced input. Conversion from bridging to matching operation is accomplished by moving a jumper wire on the socket provided on the chassis of the device in which the 5195 is mounted. The 5195 can also be used with a 5101B preamplifier, as well as the 5600-2B and 7124B, to convert the standard +10-dBm output to a 600-ohm balanced line. Frequency response of the 5195 is 50 to 20,000 Hz with less than 1% distortion at +20 dBm. Mu-metal case and hum-bucking windings provide 90 dB of shielding.



5195





5196



5901



5904



9308



9375

5196 MATCHING/BRIDGING TRANSFORMER

Each program channel of the 5306 mixer/preamplifier is equipped with a socket for installation of a 5196, allowing conversion from 50,000-ohm unbalanced to 600-ohm balanced bridging operation. Like the 5195, frequency response is 50 to 20,000 Hz with less than 1% distortion at +20 dBm with mu-metal case and hum-bucking windings for 90 dB of shielding.

5901 UNIVERSAL MICROPHONE INPUT TRANSFORMER

The 5901 converts a microphone channel of the 5101B preamplifier, 5600-2B mixer/preamplifier, 7124B AGC amplifier or 7126B compressor 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 of the microphone inputs of a 5600-2B mixer/preamplifier to a program input (50,000-ohm unbalanced) with exactly the same sensitivity as the original 50,000-ohm unbalanced program inputs.

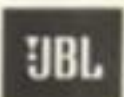
9308 70-VOLT LINE MATCHING TRANSFORMER

The 9308 is a flexible 70-volt transformer with primary taps at 1, 2, 4 and 8 Watts. The secondary winding will match 4-, 8-, or 16-ohm loudspeakers. The 9308 is rated at 8 Watts with a bandwidth of 30 to 15,000 Hz.

9375 100-WATT LINE MATCHING TRANSFORMER

The 9375 is an extremely flexible 100-Watt impedance matching autotransformer. Rated at 100 Watts, the 9375 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.





Professional Division

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213-665-4101

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PROFESSIONAL AUDIO CONTRACTOR
JBL Professional Division
Price Schedule D

Effective June 1, 1975

Model	Description	Professional Net
ENCLOSED SYSTEMS		
4311	Control Monitor, Studio Gray.....	\$ 303.00
4311WX	Control Monitor, Oiled Walnut.....	318.00
4315	Compact Studio Monitor, Studio Gray, 4-Way.....	714.00
4315WX	Compact Studio Monitor, Oiled Walnut, 4-Way.....	726.00
4320	Studio Monitor, Studio Gray.....	636.00
4320WX	Studio Monitor, Oiled Walnut.....	657.00
4330	Studio Monitor, Studio Gray, 2-Way, for Bi-Amplification.....	612.00
4330WX	Studio Monitor, Oiled Walnut, 2-Way, for Bi-Amplification.....	645.00
4331	Studio Monitor, Studio Gray, 2-Way.....	711.00
4331WX	Studio Monitor, Oiled Walnut, 2-Way.....	744.00
4332	Studio Monitor, Studio Gray, 3-Way, for Bi-Amplification.....	747.00
4332WX	Studio Monitor, Oiled Walnut, 3-Way, for Bi-Amplification.....	780.00
4333	Studio Monitor, Studio Gray, 3-Way.....	813.00
4333WX	Studio Monitor, Oiled Walnut, 3-Way.....	846.00
4340	Studio Monitor, Studio Gray, 4-Way, for Bi-Amplification.....	1050.00
4340WX	Studio Monitor, Oiled Walnut, 4-Way, for Bi-Amplification.....	1155.00
4341	Studio Monitor, Studio Gray, 4-Way.....	1077.00
4341WX	Studio Monitor, Oiled Walnut, 4-Way.....	1182.00
4350	Studio Monitor, Studio Gray, 4-Way, for Bi-Amplification.....	1446.00
4350WX	Studio Monitor, Oiled Walnut, 4-Way, for Bi-Amplification.....	1596.00
4375	Line Array, Speech Range, Studio Gray.....	279.00
4380	Colinear Array, Extended Range, Studio Gray.....	489.00
4681	Line Array, Full Range, 300 Watts RMS, Thermoplastic.....	897.00
4682	Line Array, Wide Range, 300 Watts RMS, Thermoplastic.....	999.00
46-0181	Protective plastic shipping cover for 4681 or 4682.....	126.00
CONE TRANSDUCERS		
2105	5" Speech Range.....	42.00
2108	8" Midrange.....	90.00
2110	8" Extended Range.....	54.00
2115	8" Full Range, specify 8 or 16 ohms.....	87.00
2120	10" Extended Range.....	90.00
2121	10" High Power, Midrange.....	81.00
2125	12" Shallow Frame, Extended Range.....	93.00
2130	12" High Power, Extended Range, specify 8 or 16 ohms.....	117.00
2135	15" High Power, Extended Range.....	126.00
2145	12" Composite with Crossover.....	150.00
2150	15" Composite, less Crossover.....	165.00
• 2202	12" High Power, Midrange, 8 ohms.....	114.00
2203	12" Medium Efficiency, Extended Bass, 8 ohms.....	129.00
2205	15" High Power, Low Frequency, specify 8, 16 or 32 ohms.....	129.00
2212	12" Shallow Frame, Low Frequency, 8 ohms.....	90.00
• 2215	15" Extended Bass, specify 8 or 16 ohms.....	156.00
2220	15" High Efficiency, Low Frequency, specify 8, 16 or 32 ohms.....	129.00
2231	15" Medium Efficiency, Extended Bass, 8 ohms.....	138.00
• 2290	15" Passive Radiator.....	33.00
HORNS, LENSES & ADAPTORS¹		
2305	Horn/Perforated Plate Lens, 1", 1200 Hz.....	45.00
2307	Horn, 1", 1200 Hz for 2391.....	24.00
2308	Lens, 10" Slant Plate for 2391 and 2392.....	24.00
2309	Horn, Exponential, 2", 800 Hz for 2390.....	57.00
2310	Lens, 20" Folded Plate for 2390.....	90.00
2311	Horn, 2", 1200 Hz for 2392.....	36.00
2312	Horn, 1", 800 Hz.....	39.00
2327	Adaptor, 1" Driver to 2" Horn.....	24.00
• 2328	Horn Throat, 2" Driver to Rectangular Horn.....	27.00

¹Dimensions shown after product description refer to diameter of driver throat or horn entry.

Schedule D

Model	Description	Professional Net
HORNS, LENSES & ADAPTORS¹ (Continued)		
2329	Adaptor, Dual Entry, two 2" Drivers to Rectangular Horn.....	39.00
2330	Adaptor, 2" Driver to 1.4" Horn.....	33.00
2340	Horn, Radial, 1" Right Angle Throat, 1200 Hz.....	54.00
2345	Horn, Radial, 1", 800 Hz.....	120.00
2350	Horn, Radial, Rectangular, 500 Hz.....	180.00
2355	Horn, Radial, Rectangular, 500 Hz.....	165.00
2356	Horn, Radial, 2", 150 Hz.....	282.00
2390	Order as 2309 and 2310.....	-
2391	Order as 2307 and 2308.....	-
2392	Order as 2311 and 2308.....	-
2395	Horn, 36" Slant Plate Lens, 2", 500 Hz.....	234.00
• 2397	Horn, Diffraction, Rectangular, 800 Hz.....	78.00
COMPRESSION DRIVERS		
2402	Ultra-high Frequency Ring Radiator.....	90.00
2405	Ultra-high Frequency Driver.....	90.00
2410	30W Driver, 1" Throat, Aluminum Diaphragm.....	144.00
2420	30W Driver, 1" Throat, Aluminum Diaphragm.....	174.00
• 2440	60W Driver, 2" Throat, Aluminum Diaphragm.....	294.00
2460	50W Driver, 1" Throat, Phenolic Diaphragm.....	150.00
2461	50W Driver, 1" Throat, Phenolic Diaphragm.....	150.00
2470	50W Driver, 1" Throat, Phenolic Diaphragm.....	180.00
2482	120W Driver, 2" Throat, Phenolic Diaphragm.....	294.00
2901	HF Power Pack, (2461 Driver with Horn, Lens and 3 kHz High Pass Network).....	210.00
2902	HF Power Pack, (2 Ultra-high Frequency Ring Radiators with Network).....	210.00
DIVIDING NETWORKS		
3105	7000 Hz.....	39.00
3110	800 Hz.....	84.00
3115	500 Hz.....	90.00
3120	1200 Hz for 2205, 2220.....	57.00
3125	1200 Hz for 2150.....	54.00
3152	500 Hz, High Power (Except 2215).....	141.00
3182	800 Hz, High Power (Except 2215).....	141.00
ELECTRONIC FREQUENCY DIVIDING NETWORKS		
5233	Single Channel, Less Crossover Card.....	207.00
5234	Dual Channel, Less Crossover Cards.....	243.00
CROSSOVER CARDS FOR 5233/5234 - PLUG-IN		
52-5120	Blank Card, Unloaded.....	9.00
52-5121	250 Hz.....	12.00
52-5122	500 Hz.....	12.00
52-5123	800 Hz.....	12.00
52-5124	1200 Hz.....	12.00
52-5125	5000 Hz.....	12.00
52-5127	7000 Hz.....	12.00
52-5140	For 4340 Studio Monitor.....	12.00
EQUALIZATION FILTERS		
3601	Filter Socket Strip Mounting Chassis - 4 Strip Capacity.....	66.00
3605	Filter Socket Strip - 8 Filter Capacity.....	30.00
3610	Complete Filter Set, 24 1/3-Octave Band Filters and 5 Broad Band Filters.....	2100.00
3610-63	1/3-Octave Band Filter, Center Frequency 63 Hz.....	99.00
3610-80	1/3-Octave Band Filter, Center Frequency 80 Hz.....	99.00
3610-100	1/3-Octave Band Filter, Center Frequency 100 Hz.....	93.00
3610-125	1/3-Octave Band Filter, Center Frequency 125 Hz.....	90.00
3610-160	1/3-Octave Band Filter, Center Frequency 160 Hz.....	84.00
3610-200	1/3-Octave Band Filter, Center Frequency 200 Hz.....	84.00
3610-250	1/3-Octave Band Filter, Center Frequency 250 Hz.....	81.00
3610-315 thru 12.5	1/3-Octave Filters, Center Frequencies of 315, 400, 500, 630 and 800 Hz; 1, 1.25, 1.6, 2, 2.5, 3.15, 4, 5, 6.3, 8 and 12.5 kHz.....	75.00

¹Dimensions shown after product description refer to diameter of driver throat or horn entry.

Schedule D

Model	Description	Professional Net
EQUALIZATION FILTERS (Continued)		
3611	Broad Band Shelving Filter, Low-Pass 500 Hz.....	75.00
3612	Broad Band Shelving Filter, High-Pass 1000 Hz.....	75.00
3613	Broad Band Shelving Filter, Low-Frequency Boost 90 Hz.....	75.00
3614	Broad Band Shelving Filter, High-Frequency Boost 9 kHz.....	75.00
3615	Broad Band Shelving Filter, Low-Pass 1000 Hz.....	75.00
LOW FREQUENCY HORNS		
4520BK	Dual Driver, Rear Loading, Utility Black.....	297.00
4530BK	Single Driver, Rear Loading, Utility Black.....	141.00
4550BK	Dual Driver, Front Loading, Utility Black.....	339.00
4560BK	Single Driver, Front Loading, Utility Black.....	177.00
ELECTRONIC ACCESSORIES		
5190	Microphone Preamp Expander Module, 2-Channel for 5600-2B.....	66.00
5191	Magnetic Phono/Tapehead Preamp, plug-in Module for 5600-2B.....	27.00
5192	Magnetic Phono Preamp, plug-in Module for 5306.....	30.00
5195	Matching/Bridging Transformer, plug-in Module for 5600-2B, 6000 Series Amplifiers.....	30.00
5196	Matching/Bridging Transformer, plug-in Module for 5306.....	42.00
5901	Microphone Input Transformer, plug-in Module for 5600-2B.....	24.00
5904	"T" Pad, Converts Microphone Input to 50k ohms Unbalanced, plug-in Module for 5600-2B.....	6.00
MIXERS & PREAMPLIFIERS		
5101	Preamplifier, 1-Channel.....	165.00
5152	Preamplifier, 2-Channel, with mic/line/phono selectable.....	To Be Announced
5306	Mixer/Preamplifier, 6-Mic/2-Pgm, Expandable, Includes 6 Microphone Input Transformers.....	825.00
5308	Expander, 8-Mic, includes 8 Microphone Input Transformers.....	600.00
5600-2B	Mixer/Preamplifier, 4-Mic/2-Pgm, Expandable.....	411.00
POWER AMPLIFIERS		
6006B	60 Watt.....	348.00
6010B	100 Watt.....	435.00
6020	200 Watt.....	534.00
6233	Dual 300 Watt (600 Watts total).....	1500.00
SPECIAL PURPOSE ELECTRONICS		
7124	AGC Amplifier.....	264.00
7125	Safety Matrix.....	273.00
7126	Compressor.....	375.00
METALWORK		
9101	Blank Panel 1 $\frac{3}{4}$ " x 19".....	12.00
9102	Blank Panel 3 $\frac{1}{2}$ " x 19".....	13.50
9103	Blank Panel 5 $\frac{1}{4}$ " x 19".....	15.00
9104	Blank Panel 7" x 19".....	16.50
9105	Blank Panel 8 $\frac{3}{4}$ " x 19".....	18.00
9106	Blank Panel 10 $\frac{1}{2}$ " x 19".....	19.50
SYSTEM ACCESSORIES		
2505	Adjustable Rear Horn Mount.....	27.00
9308	Speaker Matching Transformer, 8 Watt.....	24.00
9375	Autotformer, 100 Watt.....	48.00
MA15	Mounting Clamp Kit, 15" Cone Transducers.....	9.00
10460	1.5 mfd Paper Mylar Capacitor.....	1.65
10358	16.5 mfd Paper Mylar Capacitor.....	8.50
*D16R2405	Replacement Diaphragm for 2405 Driver.....	27.00
*D16R2410	Replacement Diaphragm for 2410 Driver.....	36.00
*D16R2420	Replacement Diaphragm for 2420 Driver.....	39.00
*D16R2440	Replacement Diaphragm for 2440 Driver.....	60.00
*D16R2470	Replacement Diaphragm for 2461 and 2470 Drivers.....	48.00
*D16R2482	Replacement Diaphragm for 2482 Driver.....	60.00

*While JBL makes these diaphragms available as replacements, it is strongly suggested that installation of these diaphragms be left to the JBL Service Department or factory trained and authorized servicing dealers.

These prices supersede any others previously issued and are subject to change without notice.

PROFESSIONAL DIVISION WARRANTY

Every JBL Professional Series transducer is guaranteed 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.

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.
