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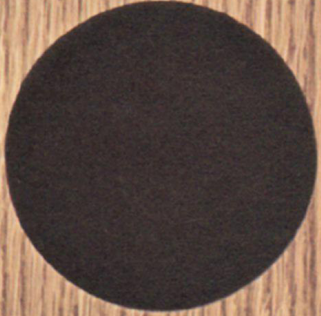
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ALTEC
LANSING

ALTEC
SOUND RESEARCH CORPORATION
MODEL NINE
3-WAY SPEAKER SYSTEM

MD FREQ HIGH FREQ

IMPEDANCE 8 OHMS SERIAL NO. _____
MADE IN U.S.A.



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ABOUT OUR CATALOGUE...

We at Altec have long been proud of the heritage we possess—nearly four decades of leadership in professional sound. The leading source for recording studio monitors, theatre sound systems, permanently installed high level sound reinforcement systems, portable sound reinforcement equipment—the list of Altec leadership goes on. Wherever professionalism in sound is the requirement, Altec is there.

We have carried our tradition of quality and professionalism into every facet of our involvement—and now with a special emphasis on equipment for the home. We have pooled our traditions, talents, and experience in engineering, design, and manufacturing to produce a most comprehensive line of quality loudspeakers and speaker systems—products of professional quality and heritage, yet products that will enhance any living environment.

In many cases these products are identical or share the same components as products destined for professional application, although this is more the exception than the rule. We, more than anyone, understand the difference in requirements for professional products and home high fidelity reproducers. Quite often the home reproducer can pose a completely different set of performance criteria to challenge the creativity of the design team. We have accepted this challenge, and the products displayed in this catalogue exemplify the output of our creative efforts, designed especially for use in the living environment.

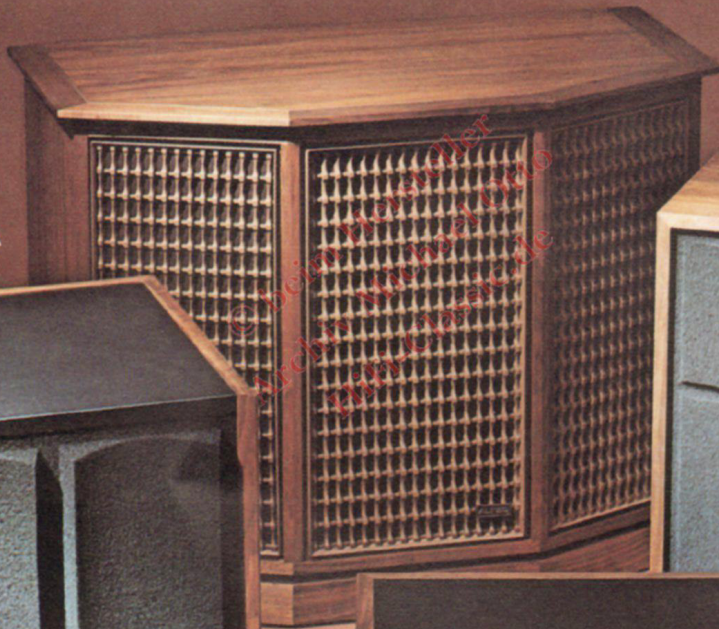
This catalogue is not only intended to display our products, but to represent our philosophy as well. That philosophy is one of optimization. Optimization of science, art, talent, and effort, resulting in the optimum in performance, styling, and value. We now bring to you, through this catalogue, a statement of that philosophy interwoven with a display of what we feel is the finest line of high fidelity reproducers available. We trust that this catalogue will make easier one of the most difficult purchasing decisions facing the consuming world: The choice of a high fidelity speaker system.

We are confident that after examining our product line and reviewing the philosophy presented by this catalogue, there will be but one choice open.

ALTEC SOUND PRODUCTS DIVISION



873A



878B



879A



846B

**Altec Floor-Standing Speaker Systems . . .
the standard of comparison for the audio world.**

879A Santana

Since its introduction the Santana has enjoyed an enviable reputation as a truly outstanding value. An Altec floor-standing model, with all the performance that that implies, finished in walnut on all sides, even the back, with a durable composition slate top, at a very affordable price. The Santana—our smallest floor-standing system, our biggest floor-standing value.

878B Santiago

Dynamic—the most concise and accurate way to describe the Santiago. Dynamic contemporary styling. Dynamic acoustic performance—from its 15" Dynamic Force bass driver. Performance that only a full-size, floor-standing system can deliver. Classically Altec—the Santiago.

846B Valencia

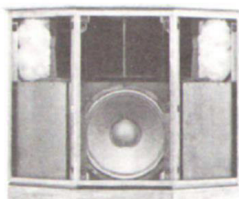
The most sought after full size Altec system in history—the Valencia. The identical components as our A7-8 "Voice of the Theatre," housed in an elegant contemporary enclosure.

873A Barcelona

The Top-of-the-Line. The Big One. The Best. Terms that have been used to describe the Barcelona—all of them accurate. The components from the top studio monitor system (the 9846-8A) housed in an enclosure of classic proportion. The Barcelona. The total experience.



878B SANTIAGO



873A BARCELONA



879A SANTANA



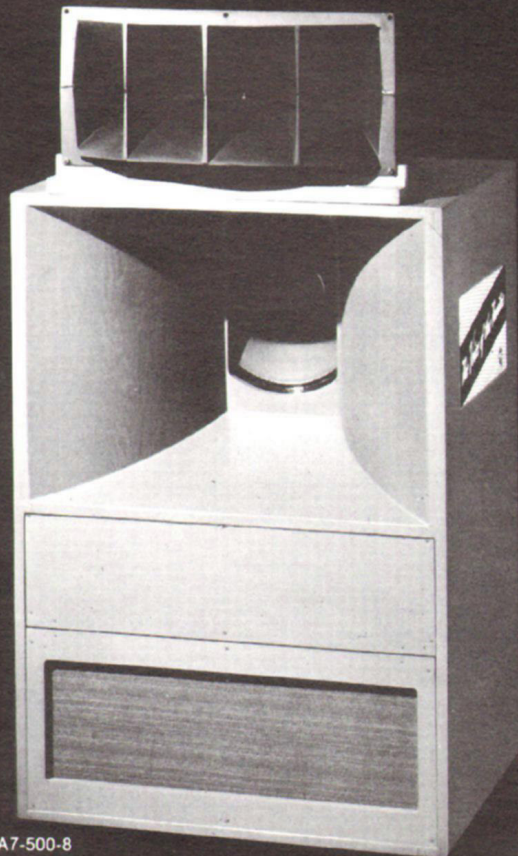
846B VALENCIA

SPEAKER COMPONENTS

	878B SANTIAGO	873A BARCELONA	879A SANTANA	846B VALENCIA
LOW FREQUENCY:	15" Dynamic Force bass driver (model 411-8A)	15" Dynamic Force bass driver (model 411-8A)	15" Biflex® bass/midrange driver	15" bass driver (model 416-8B)
HIGH FREQUENCY:	Model 806-8B compression driver mounted to model 811B sectoral horn	Model 802-8E compression driver mounted to model 511B sectoral horn	4" frame cone driver	Model 806-8B compression driver mounted to model 811B sectoral horn
NOMINAL IMPEDANCE:	8 ohms	8 ohms	8 ohms	8 ohms
CROSSOVER FREQUENCY:	800 Hz (model N801-8A network with model 30904 attenuator/equalizer)	500 Hz (model N501-8A network with model 30904 attenuator/equalizer)	3.5 kHz	800 Hz
ENCLOSURE TYPE:	Sealed	Sealed	Sealed	Vented
SENSITIVITY: Measured at 4 feet, 1 watt input referenced to 8 ohms, using pink noise which has been limited to a bandwidth of 500 Hz to 3 kHz.	92.5 dB SPL	92.5 dB SPL	95 dB SPL	97.5 dB SPL
FREQUENCY RESPONSE:	35 Hz to 20 kHz	30 Hz to 20 kHz	40 Hz to 20 kHz	40 Hz to 20 kHz
DISPERSION: Measured with pink noise limited to a bandwidth of 500 Hz—8 kHz at a distance of 4 feet.	60° at -6 dB vertical 90° at -6 dB horizontal	60° at -6 dB vertical 90° at -6 dB horizontal	75° at -6 dB vertical 75° at -6 dB horizontal	60° at -6 dB vertical 90° at -6 dB horizontal
LONG TERM BROAD BAND MAXIMUM POWER: Measured with a source of pink noise limited to the frequency response bandwidth of the system, over an extended time period.	60 watts	60 watts	45 watts	50 watts
OPERATIONAL POWER RANGE: Recommended for use with amplifiers between these levels.	20 watts to 300 watts	20 watts to 300 watts	12 watts to 150 watts	10 watts to 250 watts
LONG TERM MAXIMUM ACOUSTIC OUTPUT: Measured with a source of pink noise limited to the frequency response bandwidth of the system at a distance of 4 feet.	110.5 dB SPL at 60 watts	110.5 dB SPL at 60 watts	112 dB SPL at 45 watts	114 dB SPL at 50 watts
FINISH:	Hand-rubbed oiled walnut with composition slate top	Hand-rubbed oiled walnut	Hand-rubbed oiled walnut with composition slate top	Hand-rubbed oiled walnut
GRILLE:	Sculptured acoustically transparent black foam mounted on removable panel	3-piece removable formed walnut-grained fretwork	Acoustically transparent black woven fabric mounted on removable panel	Sculptured acoustically transparent black foam mounted on removable panel
DIMENSIONS:	30 1/8" H x 25 1/2" W x 18 1/2" D 765 mm H x 676 mm W x 495 mm D	29 7/8" H x 38 1/2" W x 25" D 759 mm H x 978 mm W x 635 mm D	23 3/4" H x 20" W x 17" D 661 mm H x 508 mm W x 431 mm D	29 1/8" H x 26 1/2" W x 20 1/4" D 752 mm H x 673 mm W x 514 mm D
SHIPPING WEIGHT:	124 lbs—57.6 kg	184 lbs—83.4 kg	59 lbs—26.8 kg	114 lbs—51.7 kg
ACTUAL WEIGHT:	110 lbs—49.9 kg	149 lbs—67.6 kg	52 lbs—23.6 kg	99 lbs—44.9 kg



A7-8



A7-500-8

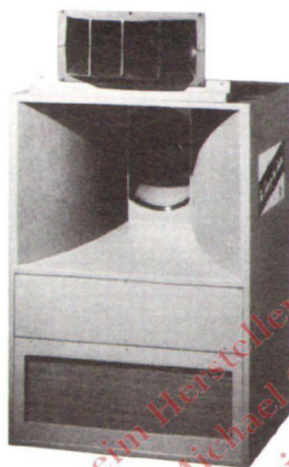
The Voice of the Theatre . . . A legend in its own time.

The Voice of the Theatre. Known by name. Known by sight. Known by reputation. A legend in its own time. Once an exclusively professional product, overwhelming demand forced its being made available to those who insist upon its unparalleled presence and efficiency for their homes. The only way to duplicate the excitement inherent in the sound of the theatre—the Voice of the Theatre.

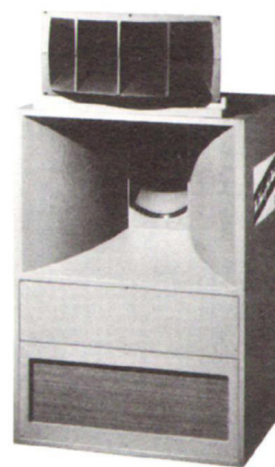
Excitement . . . drama . . . realism . . . emotion . . . Adjectives that describe the ways you feel during the film experience.

The experience of sight—and of sound. The experience that is the Voice of the Theatre—a legend in its own time.

There are two legendary Voice of the Theatre systems available through authorized Altec high fidelity equipment dealers, the A7-8, and the A7-500-8. Both share the same cabinet and low frequency driver. The differences lie in the networks and high frequency components; the A7-500-8 has increased mid frequency projection over the A7-8.



A7-8



A7-500-8

SPEAKER COMPONENTS

LOW FREQUENCY:

HIGH FREQUENCY:

NOMINAL IMPEDANCE:

CROSSOVER FREQUENCY:

ENCLOSURE TYPE:

SENSITIVITY:

Measured at 4 feet, 1 watt input referenced to 8 ohms, using pink noise which has been limited to a bandwidth of 500 Hz to 3 kHz.

FREQUENCY RESPONSE:

DISPERSION:

Measured with pink noise limited to a bandwidth of 500 Hz—8 kHz

LONG TERM BROAD BAND

MAXIMUM POWER:

Measured with a source of pink noise limited to the frequency response bandwidth of the system, over an extended time period.

OPERATIONAL POWER RANGE:

Recommended for use with amplifiers between these levels.

LONG TERM MAXIMUM

ACOUSTIC OUTPUT:

Measured with a source of pink noise limited to the frequency response bandwidth of the system at a distance of 4 feet.

FINISH:

DIMENSIONS:

SHIPPING WEIGHT:

ACTUAL WEIGHT:

15" bass driver (model 416-8B)
Model 806-8B compression driver mounted
to model 811B sectoral horn

8 ohms

800 Hz (model N801-8A network)

Horn loaded with reflex port

101 dB SPL

45 Hz to 20 kHz

60° at -6 dB vertical
90° at -6 dB horizontal

50 watts

10 watts to 250 watts

118 dB SPL at 50 watts

Theatre gray

52¼" H x 30" W x 24" D
1327 mm H x 762 mm W x 612 mm D

160 lbs—72.6 kg

135 lbs—61.36 kg

15" bass driver (model 416-8B)

Model 802-8E compression driver mounted
to model 511B sectoral horn

8 ohms

500 Hz (model N501-8A network)

Horn loaded with reflex port

101 dB SPL

45 Hz to 20 kHz

60° at -6 dB vertical
90° at -6 dB horizontal

50 watts

10 watts to 250 watts

118 dB SPL at 50 watts

Theatre gray

52¼" H x 30" W x 24" D
1378 mm H x 762 mm W x 612 mm D

163 lbs—76.2 kg

142 lbs—64.54 kg



III



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ALTEC
LANSING



I

II

Altec Stonehenge Loudspeaker Systems.

Stonehenge—an ancient civilization's state of the art in design, craftsmanship, and technology. A design so advanced, it requires modern man's technology to begin to understand its significance.

Stonehenge—the state of the art in design, craftsmanship and technology for today's listener. Designs so advanced only modern man's technology could have created them.

All three models are designed to deliver the overwhelming performance that only a true, full size floor model can produce, yet each occupies about the same amount of floor space as most compact speaker systems. The perfect answer to today's smaller living areas.



STONEHENGE I



STONEHENGE II



STONEHENGE III

SPEAKER COMPONENTS

LOW FREQUENCY:

12" bass driver

12" bass driver

15" bass driver with coaxially mounted sectoral horn and compression driver (Model 604-8G)

MID FREQUENCY:

HIGH FREQUENCY:

5" frame cone driver

5½" frame cone driver

5" frame cone driver

NOMINAL IMPEDANCE:

8 ohms

8 ohms

8 ohms

CROSSOVER FREQUENCY:

1800 Hz

500 Hz, 5 kHz

1500 Hz

ENCLOSURE TYPE:

Vented

Vented

Vented

SENSITIVITY:

Measured at 4 feet, 1 watt input referenced to 8 ohms, using pink noise which has been limited to a bandwidth of 500 Hz to 3 kHz.

90 dB SPL

86 dB SPL

100 dB SPL

FREQUENCY RESPONSE:

DISPERSION:

Measured with pink noise limited to a bandwidth of 800 Hz—8 kHz at a distance of 4 feet.

50 Hz to 20 kHz

100° at -6 dB vertical

120° at -6 dB horizontal

35 Hz to 20 kHz

130° at -6 dB vertical

130° at -6 dB horizontal

50 Hz to 20 kHz

60° at -6 dB vertical

70° at -6 dB horizontal

LONG TERM BROAD BAND

MAXIMUM POWER:

Measured with a source of pink noise limited to the frequency response bandwidth of the system, over an extended time period.

45 watts

50 watts

65 watts

OPERATIONAL POWER

RANGE:

Recommended for use with amplifiers between these levels.

15 watts to 150 watts

20 watts to 250 watts

10 watts to 350 watts

LONG TERM MAXIMUM

ACOUSTIC OUTPUT:

Measured with a source of pink noise limited to the frequency response bandwidth of the system at a distance of 4 feet.

106.5 dB SPL at 45 watts

103 dB SPL at 50 watts

118 dB SPL at 65 watts

FINISH:

Hand rubbed oiled afromosian teak

Hand-rubbed oiled oak

Hand-rubbed oiled oak

GRILLE:

Acoustically transparent brown woven fabric mounted on removable frame

Acoustically transparent brown knit fabric mounted on removable frame

Acoustically transparent brown foam mounted in removable panel

DIMENSIONS:

37½" H x 16" W x 14¾" D
953mm H x 406mm W x 362mm D

37½" H x 16" W x 14¾" D
953mm H x 406mm W x 362mm D

46" H x 18¾" W x 17¼" D
1168mm H x 476mm W x 438mm D

SHIPPING WEIGHT:

90 lbs—40.8 kg

76 lbs—34.5 kg

130 lbs—58.8 kg

ACTUAL WEIGHT:

75 lbs—34 kg

61 lbs—27.7 kg

114 lbs—51.7 kg



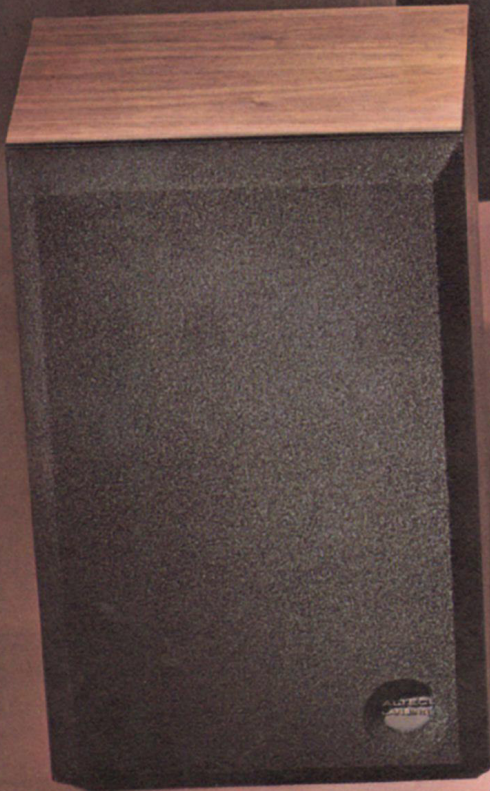
THREE



ONE



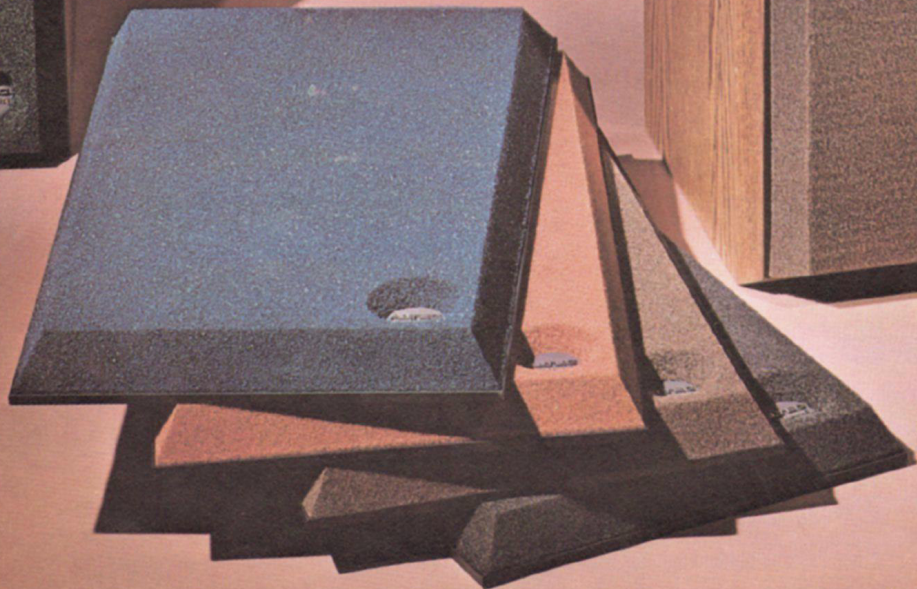
FIVE



SEVEN



NINE



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Our New Line...

designed with a totally new approach: the satisfaction of ears.

The variables in the design of a speaker system are so numerous, and their interrelations so complex, that often the end purpose of a speaker system is lost in the shuffle. But the design of the products shown here has been approached with a new vista: Find out what *people* (as opposed to test equipment) prefer in their listening tastes, then design speakers to deliver just that.

Most other companies spend a good part of their time and efforts learning to build speakers. We know how to build speakers—

we've been doing it for nearly 40 years. So what we have put our research emphasis on is *psycho-acoustics*—the study of how people perceive what they hear. We learned what people like to listen to, then, armed with our new-found knowledge, designed and built a series of speaker systems using reliable, well-established acoustic technology, then housed them in some of the most appealing natural wood veneer enclosures ever to grace a bookshelf.



MODEL ONE



MODEL THREE



MODEL FIVE



MODEL SEVEN



MODEL NINE

SPEAKER COMPONENTS:

LOW FREQUENCY:	8" Bass Driver	10" bass driver	12" bass driver	12" bass driver	12" bass driver
MID FREQUENCY:				6½" frame cone driver	6½" frame cone driver
HIGH FREQUENCY:	4" frame cone driver	4" frame cone driver	2 each 4" frame cone drivers	4" frame cone driver	5" frame cone driver
NOMINAL IMPEDANCE:	8 ohms	8 ohms	8 ohms	8 ohms	8 ohms
CROSSOVER FREQUENCY:	3000 Hz	1500 Hz	1500 Hz	850 Hz, 8 kHz	800 Hz; 7 kHz
ENCLOSURE TYPE:	Sealed	Vented	Vented	Vented	Vented
SENSITIVITY: Measured at 4 feet, 1 watt input referenced to 8 ohms, using pink noise which has been limited to a bandwidth of 500 Hz to 3 kHz.	84 dB SPL	90.5 dB SPL	91.5 dB SPL	90 dB SPL	93 dB SPL
FREQUENCY RESPONSE:	50 Hz to 20 kHz	50 Hz to 20 kHz	45 Hz to 20 kHz	45 Hz to 20 kHz	40 Hz to 20 kHz
DISPERSION: Measured with pink noise limited to a bandwidth of 800 Hz—8 kHz at a distance of 4 feet.	130° at -6 dB vertical 140° at -6 dB horizontal	120° at -6 dB vertical 140° at -6 dB horizontal	90° at -6 dB vertical 120° at -6 dB horizontal	120° at -6 dB vertical 130° at -6 dB horizontal	110° at -6 dB vertical 115° at -6 dB horizontal
LONG TERM BROAD BAND MAXIMUM POWER: Measured with a source of pink noise limited to the frequency response bandwidth of the system, over an extended time period.	30 watts	35 watts	45 watts	50 watts	60 watts
OPERATIONAL POWER RANGE: Recommended for use with amplifiers between these levels	12 watts to 75 watts	10 watts to 100 watts	12 watts to 150 watts	15 watts to 200 watts	12 watts to 250 watts
LONG TERM MAXIMUM ACOUSTIC OUTPUT: Measured with a source of pink noise limited to the frequency response bandwidth of the system at a distance of 4 feet.	99 dB SPL at 30 watts	106 dB SPL at 35 watts	108 dB SPL at 45 watts	107 dB SPL at 50 watts	110.5 dB SPL at 60 watts
FINISH:	Hand-rubbed oiled oak	Hand-rubbed oiled oak	Hand-rubbed oiled walnut	Hand-rubbed oiled walnut	Hand-rubbed oiled oak
GRILLE:	Acoustically transparent brown knit fabric mounted on removable frame	Acoustically transparent black knit fabric mounted on removable frame	Acoustically transparent black knit fabric mounted on removable frame	Acoustically transparent foam mounted on removable panel. Choice of black, brown, blue, or burnt orange	Acoustically transparent foam mounted on removable panel. Choice of black, brown, blue, or burnt orange
DIMENSIONS:	21" H x 11½" W x 10¾" D 533mm H x 292mm W x 264mm D	24" H x 12½" W x 11½" D 609mm H x 318mm W x 292mm D	25½" H x 14½" W x 12" D 648mm H x 368mm W x 305mm D	25" H x 16" W x 14½" D 635mm H x 406mm W x 359mm D	26½" H x 17½" W x 15" D 673mm H x 445mm W x 381mm D
SHIPPING WEIGHT:	54 lbs—24.5 kg (2 units per carton)	32½ lbs—14.7 kg	38¼ lbs—17.4 kg	49¼ lbs—22.3 kg	64 lbs—29 kg
ACTUAL WEIGHT:	23 lbs.—10.4 kg	26¼ lbs—12 kg	32 lbs—14.5 kg	43¾ lbs—20 kg	56 lbs—25.4 kg

Specifications—What is their significance? How are they measured?

One thought that emerges, often unconsciously, in the mind of someone contemplating the purchase of quality audio equipment, is this: "If there is any consistency among manufacturers in their methods of specifying loudspeaker performance characteristics, I fail to see it."

The fact is, each manufacturer has his own methods for measuring and rating his equipment, and universal measuring techniques for some characteristics are impossible to achieve.

Because of this, we cannot offer a means of deciphering manufacturer's specifications which enable the comparison of other products with ours. What we do offer is an explanation of our major specifications, how we measure them, and why we consider them significant; something few others do.

Speaker Components

Here the active driver elements employed in the system are listed, by size and type. All of our low-frequency and mid-frequency drivers utilize cones as the moving elements. In the case of a high-frequency component, it may be a cone-type driver or a compression driver. Compression drivers usually will pass a wider range of frequencies and have greater sensitivity, but are more expensive than cone drivers, and require the use of a horn to disperse their energy.

We list the frame sizes of our cone drivers and, where possible, we specify the model number of all components sold separately for those who wish to build their own enclosures. More detailed information on these separate components are listed in this catalogue.

The size of the driver itself does not imply what the performance will be like. What we are trying to accomplish with our products is optimum performance within a given set of parameters. Size, price, and the laws of physics dictate what can be done. Certain tradeoffs, involving woofer size, efficiency, enclosure size, and low-frequency response characteristics, are made in order to optimize performance for the speaker's intended purpose—that of a reproducer ideally suited for use in the living environment.

Nominal Impedance

All of our high-fidelity products are now standardized at 8 ohms. It is important to know the impedance when operating more than one set of speakers at a time, since adding speakers lowers the impedance. If the impedance drops too low, it can endanger the amplifier. "Zero ohms" is a short circuit; potentially, disaster to an amplifier.

If you are planning to connect multiple speakers to your amplifier, consult your Altec dealer to determine the safest method. To do this, the impedance must be known; for that reason it is listed.

Crossover Frequency

The crossover point(s) for each system is specifically selected to optimize the overall performance of that system. The crossover frequency indicates the point at which the response of two speaker components (such as a woofer and mid-range) intersect, or cross over. It is important to know that this is not the point at which a driver stops operating; rather, it is the point at which the driver radiates about 50% of its mean output level, and continues to radiate energy below (or above) this point.

Enclosure Type

In its nearly 40-year history, Altec has developed systems using nearly every major type of enclosure tuning method, and we have many different types in use today. Ducted and conventional reflex, horn loaded, sealed enclosures, all are produced by Altec. Why does Altec not subscribe to the hypothesis that one tuning method is clearly better than any other, as most manufacturers do? Because there is no one universally best method. If there were, there would not be so many schools of thought on the subject.

Altec selects its tuning method as part of a total package of parameters to deliver the most desirable low-frequency performance from a given product—a study in performance optimization.

Sensitivity

Sensitivity is one of the most important, yet most overlooked performance parameters. It indicates how efficient a unit is; that is, how much acoustic output it can deliver for a given amount of electrical input. The larger the number, the more sensitive, or efficient, the unit is.

As an example, if a unit has a sensitivity rating of 100 dB SPL, it will have 10 times the acoustic output as a unit with a rating of 90 dB SPL, with the same input power. This is like multiplying the amplifier power by 10!

Why consider a speaker of modest sensitivity? Sensitivity is expensive. It either costs money, size, response at the low and high ends of the audio band, distortion, or a combination of all of these.

And how loud is loud, anyway? The sound level of a normal conversation is about 70 dB SPL; that of a rock concert is about 115 dB SPL. Bearing these two references in mind and noting that sound level diminishes with distance, you should be able to determine the range of sensitivity and amplifier power necessary for your listening requirements.

Frequency Response

Frequency response is a not-too-important specification which has been popularized as almost indispensable. Actually, it is almost dispensable. All it really states are the practical limits at the extremes of the audio band.

Frequency response is always measured directly in front of the center of a speaker, a place you would never sit when listening to stereo. And the fact is that frequency response can change drastically with a very slight movement of the measuring point.

Frequency response cannot tell you "how much bass or treble" a speaker will produce; it cannot, nor can any specification or group of specifications, tell you how a speaker will sound—only a well devised and careful listening test can do that.

It is our recommendation that you exercise the ultimate option—the listening test—as the deciding factor for selecting a speaker system. Your Altec dealer will provide the best possible listening environment and comparison facilities—use them.

Dispersion

The purpose of this specification is to show how much a speaker system spreads out its energy. Generally, the higher the frequency, the less the energy spreads out. For this reason, we measure dispersion within a frequency band which contains energy which spreads out the least. If we were to extend the bandwidth much lower, as some manufacturers do, the low-frequency energy would make the specification unrealistically optimistic.

"90° at -6 dB horizontal" means that if we were to look at an arc, 90° wide, with the center directly in front of the speaker, the amount of energy at the edges of the arc would be 6 dB less than at the center. The -6 dB level is about 25% of the reference level. Although there is energy radiated beyond this level, -6 dB is a reasonable practical limitation for dispersion.

Is dispersion good or bad? An adequate dispersion pattern is required to convey a good stereo image and to prevent "beaming", but too broad a dispersion pattern can distort the stereo panorama or cause frequency cancellation by environmental surface reflection, as is the case with most omnidirectional speakers.

Long-Term Broad-Band Maximum Power

This is a "worst case" rating. The system is driven using pink noise which has been limited by electronic filtering to its frequency response bandwidth. It is then driven for several hours. After a successful test, the power is increased in 5-watt increments. The unit is tested until it fails, and the rating used is the level of the step used before failure.

This is a far more severe test than "music power", "peak power", or "integrated program material", and results in highly conservative ratings.

Operational Power Range

Operational power range is the range of minimum to maximum amplifier power that should be used with the unit. This allows for a larger amplifier which can easily pass high-level power peaks in the program material—peaks which are often more than 10 times the average program level.

Although a large amplifier can damage speakers, so can a small one. Keep in mind that an amplifier's rating is at or below a given distortion level; this does not mean the amplifier will cease to generate power at this point. Some amplifiers are capable of power greatly exceeding their "rated" power, but it is highly distorted and with greater damaging potential than a clean signal at the same level.

Most any amplifier can damage a speaker. To prevent speaker burnout, use common sense, and discuss it with your Altec dealer. When the signal becomes distorted, you are overdriving the speaker, or amplifier, or both. And remember—the tone controls increase output just as the volume control does, so avoid large amounts of tone compensation at high level.

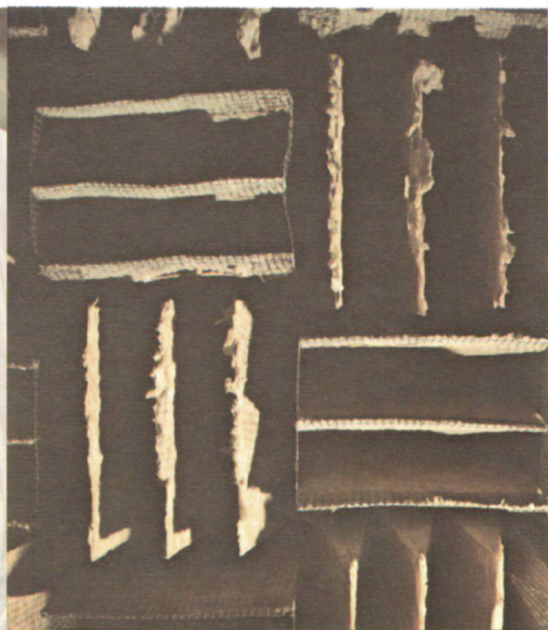
Long-Term Maximum Acoustic Output

This is a measure of how loud a system can play. It takes into consideration both power handling and sensitivity. Measurement is made at the long-term, broad-band, maximum power level. The larger the number, the higher the level. The system is capable of more output, just as it is capable of more power input than specified, but not on an extended time basis.

A Note on "Pink Noise"

Most of our specifications are measured with pink noise. Pink noise is a constant amount of energy per octave, the most reliable way of duplicating the effect of music played through a system under controlled test conditions. White noise, sometimes used by other manufacturers, is a constant amount of energy per cycle. This takes on a special significance when we consider the structure of the audio spectrum

If we select any frequency at random, say 1000 Hz, we can go one octave above our reference by doubling our frequency, or one octave below by halving it. So the musical distance between 1000 Hz and 2000 Hz is one octave, but it is a difference of 1000 Hz, whereas the musical distance between 500 Hz and 1000 Hz is also one octave, but the difference is only 500 Hz. The problems in using white noise are even more significant when we compare the extreme ends of the audio band. The lowest octave, from 30 Hz to 60 Hz, is only 30 Hz wide; the highest octave, from 10,000 Hz to 20,000 Hz, is 10,000 Hz wide; yet both are one octave. None of these problems are posed if pink noise is used, since it is a constant energy-per-octave signal.



Benchmark For An Industry

For nearly four decades, Altec products have been the standard by which others are measured. The equipment to use whenever there is uncompromising need for a professional approach to audio. What Altec is, has always been, and continually strives to be, is the final answer to a demanding requirement. The answer to the question, "Which brand of speaker do I choose from among so many?" The company dedicated to fulfilling the nearly impossible audio requirements imposed by today's professional musician, recording engineer, acoustical engineer and, often the most demanding, discerning and quality-conscious audio purchaser, you—today's high-fidelity equipment purchaser.

An awareness of what goes into the design and production of a precision reproducer is essential to the understanding of the absolute advantage possessed by Altec in the audio industry through its nearly 40 years of uncompromising experience. You can share in that advantageous experience by selecting an Altec product.

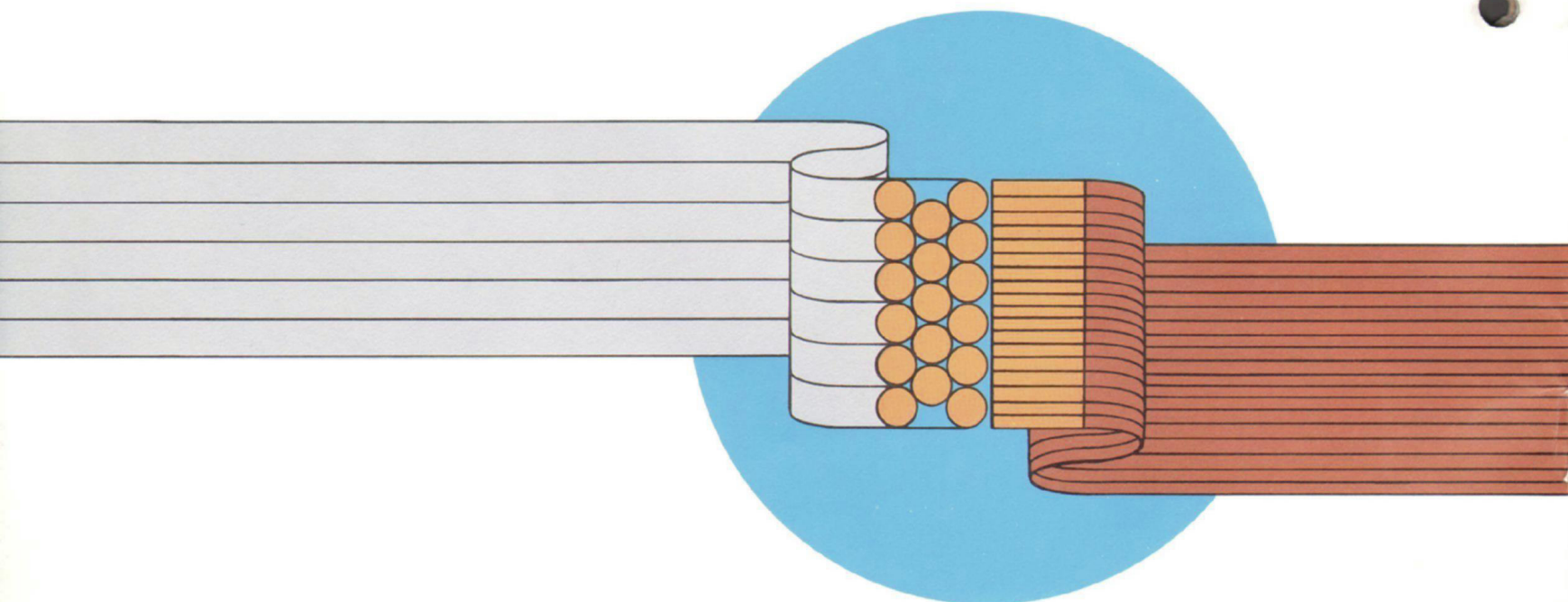
The Anatomy of a Precision Reproducer

Efficiency is a quality difficult to achieve in a loudspeaker. Powerful magnetic structures, precisely spaced magnetic gaps and optimal material selection are necessities for high efficiency. Precision die-cast frames are required to keep the precision magnetic structures in perfect alignment, making possible high efficiency and low distortion not obtainable in other products. The tolerances required to achieve such performance are not producible using any lesser technology, and seldom will a manufacturer be found whose attitude about precise tolerances approaches one as rigorous as Altec's.

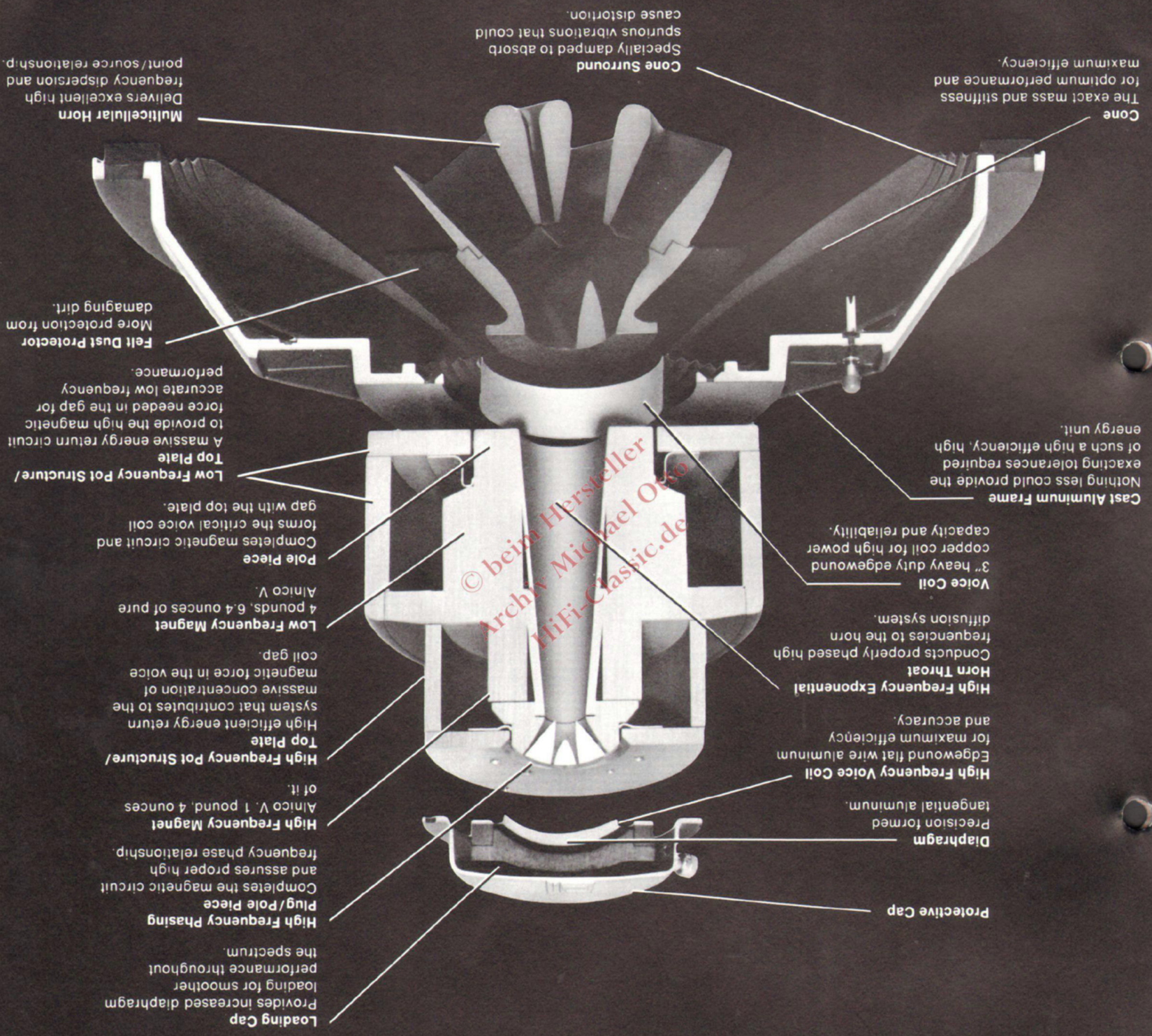
The flat wire voice coil is a cornerstone of the accuracy and efficiency that is Altec. Altec has used flat wire voice coils longer than anyone. Some of the products in this catalogue have ancestral roots in products which were designed before anyone else used flat wire. Some early theatre components were designed and built in the 1930's using flat wire voice coils. This voice coil format is something that has traditionally been Altec—a testimony of intolerance to compromise.

The flat wire voice coil, although extremely difficult to produce, presents an advantage that is easy to understand. The flat wire coil starts life as high-quality round wire, which is then specially processed to flatten it into a rectangular ribbon of precise dimensions. The wire is then wound, on edge, into a coil. Flat wire coils are only one layer thick, making a very small magnetic gap opening possible—imperative for high efficiency. Conventional round wire coils are usually two or more layers high, resulting in a wider magnetic gap and a corresponding reduction in magnetic efficiency. Additionally, round wire wound against itself creates air gaps between adjacent layers. Not so with flat wire coils, which are tightly wound for the most efficient magnetic characteristics possible.

The flat wire voice coil and precision cast and machined metal parts are just a few of the better known examples of what makes Altec the state of loudspeaker craftsman's art. Continued research in physics, mechanics, metallurgy, chemistry, and psycho-acoustics goes on within the company with one underlying goal in mind: To bring to you, the audio equipment user, the finest that science and art can create. Presented here is an example of the application of this advanced state of the art, the latest in the 604 series of Duplex Monitor Loudspeakers—the 604-8G—the latest in this series of loudspeakers that is the reference standard for the recording world.



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Multicellular Horn
 Delivers excellent high frequency dispersion and point/source relationship.

Felt Dust Protector
 More protection from damaging dirt.

Top Plate
 A massive energy return circuit to provide the high magnetic force needed in the gap for accurate low frequency performance.

Low Frequency Pot Structure/ Pole Piece
 Completes magnetic circuit and forms the critical voice coil gap with the top plate.

Low Frequency Magnet
 4 pounds, 6.4 ounces of pure Alnico V.

Top Plate
 High efficient energy return system that contributes to the massive concentration of magnetic force in the voice coil gap.

High Frequency Pot Structure/ Top Plate
 High efficient energy return system that contributes to the massive concentration of magnetic force in the voice coil gap.

High Frequency Magnet
 Alnico V, 1 pound, 4 ounces of it.

High Frequency Phasing Plug/Pole Piece
 Completes the magnetic circuit and assures proper high frequency phase relationship.

Loading Cap
 Provides increased diaphragm loading for smoother performance throughout the spectrum.

Cone Surround
 Specially damped to absorb spurious vibrations that could cause distortion.

Cone
 The exact mass and stiffness for optimum performance and maximum efficiency.

Cast Aluminum Frame
 Nothing less could provide the exacting tolerances required of such a high efficiency, high energy unit.

Voice Coil
 3" heavy duty edge wound copper coil for high power capacity and reliability.

Horn Throat
 Conducts properly phased high frequencies to the horn diffusion system.

High Frequency Exponential Horn
 Edgewound flat wire aluminum for maximum efficiency and accuracy.

High Frequency Voice Coil
 Precision formed tangential aluminum.

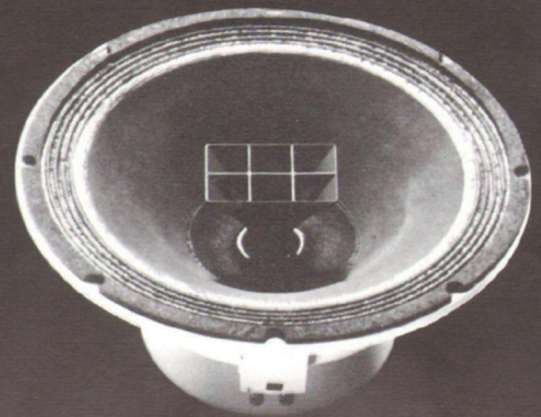
Diaphragm
 Precision formed

Protective Cap

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Altec Loudspeaker Components . . .

Precision reproducers for the designing listener.



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604-8G 15" Duplex Monitor Loudspeaker

Long the standard of the professional recording world, the 604 series of duplex loudspeakers has been developed to a degree of perfection known to no other single precision reproducer in the 604-8G. A highly efficient low-frequency transducer is complemented by a coaxially mounted high-frequency driver and sectoral horn. The single-point-source audio generation effects absolutely accurate phasing and stereo imagery. A separately mounted asymmetrical dividing network is included with the unit to complete the high-accuracy package.

IMPEDANCE:

8 ohms

CROSSOVER FREQUENCY:

1500 Hz

DIMENSIONS:

16" (406 mm) diameter
11 $\frac{1}{8}$ " (283 mm) deep

WEIGHT:

34 lbs. (15.4 kg)
(includes dividing network)

FINISH:

Dark gray enamel

MOUNTING DATA —

BAFFLE OPENING:

14 $\frac{1}{8}$ " (359 mm)
(front or rear mounting)

**MOUNTING BOLT
CENTERS:**

8 or 4 bolts equally spaced on 15" (381 mm)
diameter circle

601-8D 12" Duplex Loudspeaker

The ideal answer for a high-efficiency, high-accuracy reproducer to fit into enclosures of modest dimensions, the 601-8D provides performance in the Altec tradition in popular duplex format. The high-frequency compression driver and sectoral horn are coaxially mounted, and are complemented by a high-efficiency woofer with a 3" edge-wound aluminum ribbon voice coil. A precision dividing network with continuously variable attenuator completes the package.

IMPEDANCE:

8 ohms

CROSSOVER FREQUENCY:

3000 Hz

DIMENSIONS:

12 $\frac{1}{8}$ " (308 mm) diameter
5 $\frac{5}{8}$ " (143 mm) deep

WEIGHT:

15 lbs. (6.8 kg)

FINISH:

Gray enamel

MOUNTING DATA —

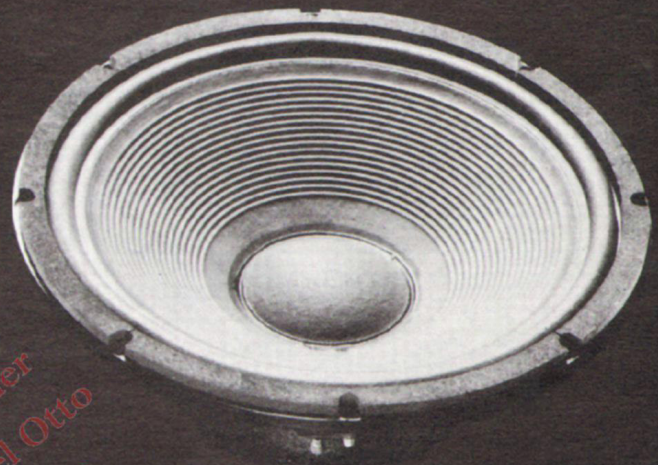
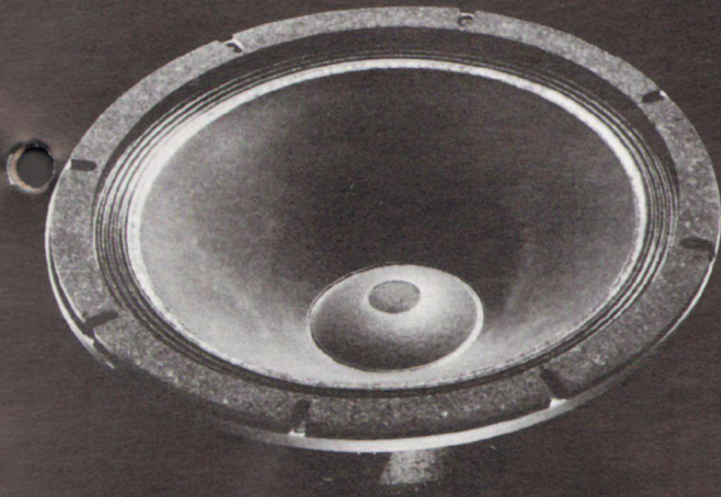
BAFFLE OPENING:

11 $\frac{1}{8}$ " (283 mm) diameter
(front or rear mounting)

**MOUNTING BOLT
CENTERS:**

4 bolts equally spaced on 11 $\frac{1}{8}$ " (294 mm)
diameter circle

Low-Frequency Loudspeakers



416-8B 15" Low-Frequency Loudspeaker

The 416-8B is the woofer used in the world famous A-7 "Voice of the Theatre" speaker systems. Its unprecedented efficiency makes it ideal for use with Altec high-frequency compression drivers and sectoral horns. Its rigid die-cast aluminum frame will mount to the front or rear of the baffle, allowing for flexibility and ease of installation. The 416-8B works best in a vented enclosure having an internal volume between 4½ and 12 cubic feet.

IMPEDANCE:

8 ohms

DIMENSIONS:

16" (406 mm) diameter
7" (178 mm) deep

WEIGHT:

19¼ lbs. (8.7 kg)

FINISH:

Dark gray enamel

MOUNTING DATA —

BAFFLE OPENING:

14⅞" (359 mm)
(front or rear mounting)

MOUNTING BOLT

CENTERS:

8 or 4 bolts equally spaced on 15" (381 mm)
diameter circle

COMPLEMENTARY COMPONENTS:

806-8B driver, 811B horn, N801-8A network
802-8E driver, 511B horn, N501-8A network

411-8A 15" Low-Frequency Loudspeaker

The heart of the Barcelona, Santiago, and our top-of-the-line studio monitor, the 411-8A is a medium-efficiency woofer designed to work in a sealed enclosure having an internal volume ranging from 4 to 8 cubic feet. It can be coupled to Altec high-efficiency compression drivers, networks and horns by utilizing the 30904 attenuator/equalizer. This results in a performance package of modest size, but with extended response on both ends of the frequency spectrum.

IMPEDANCE:

8 ohms

DIMENSIONS:

15⅝" (389 mm) diameter
5⅞" (149 mm) deep

WEIGHT:

20.5 lbs. (9.3 kg)

FINISH:

Dark gray enamel

MOUNTING DATA —

BAFFLE OPENING:

14⅞" (359 mm) front mounting
13¾" (349 mm) rear mounting

MOUNTING BOLT

CENTERS:

14⅞" (371 mm) diameter circle

COMPLEMENTARY COMPONENTS:

806-8B driver, 811B horn, N801-8A network,
30904 attenuator/equalizer
802-8E driver, 511B horn, N501-8A network,
30904 attenuator/equalizer

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Low-Frequency Loudspeakers



414-8C 12" Low-Frequency Loudspeaker

The 414-8C is a highly efficient woofer designed for use in enclosures from 2½ to 10 cubic feet. Its high efficiency makes it the ideal complement for Altec high-frequency compression drivers and sectoral horns. The 414-8C is used extensively in high-accuracy sound reproduction systems in living environments as well as professional applications.

IMPEDANCE:

8 ohms

DIMENSIONS:

12¼" (311 mm) diameter
5¾" (146 mm) deep

WEIGHT:

16.5 lbs. (7.5 kg)

FINISH:

Dark gray enamel

MOUNTING DATA —**BAFFLE OPENING:**

11⅞" (293 mm) diameter
(front or rear mounting)

MOUNTING BOLT —**CENTERS:**

4 bolts equally spaced on 11⅞" (294 mm)
diameter circle

COMPLEMENTARY COMPONENTS:

806-8B driver, 811B horn, N801-8A network

405A 4" Extended Range Loudspeaker

The ideal replica in sound to Altec speakers designed for home use, the 405A has established an enviable reputation as a superb quality speaker for auto stereo applications. Its small size and ruggedness, combined with uncompromising Altec performance, make it ideal for this application. The 405A also performs admirably in conventional installations when used in an enclosure between ¼ and 1 cubic foot.

IMPEDANCE:

8 ohms

DIMENSIONS:

4¾" (111 mm) square
2⅞" (54 mm) deep

WEIGHT:

2⅞ lbs. (0.9 kg)

FINISH:

Gray enamel

MOUNTING DATA —**BAFFLE OPENING:**

4⅜" (106 mm) front mounting
3⅜" (97 mm) rear mounting

MOUNTING BOLT —**CENTERS:**

4 holes equally spaced at 90° on
4⅜" (119 mm) diameter circle

High-Frequency Compression Drivers

The compression driver is an amazing device. Heavy. Solid. An assembly of precision high-density material. Far more than just a tweeter, a compression driver is capable of a much wider bandwidth and vastly higher sensitivity than cone-type high-frequency reproducers, making possible extremely high-sensitivity, wide-band, two-way systems when coupled to appropriate bass drivers.

	802-8E	806-8B
IMPEDANCE:	8 ohms	8 ohms
MINIMUM CROSSOVER FREQUENCY:	500 Hz	800 Hz
DIMENSIONS:	4½" (114.3 mm) diameter, 3¾" (97mm) deep	4½" (114.3 mm) diameter, 3¾" (84 mm) deep
WEIGHT:	7 lbs (3.18 kg)	5 lbs, 11 oz (2.6 kg)
FINISH:	Dark gray enamel	Dark gray enamel
COMPLEMENTARY COMPONENTS:	N501-8A, 511B, N801-8A, 811B, 411-8A, 416-8B, 30904	N801-8A, 811B, 411-8A, 416-8B, 414-8C, 30904

Sectoral Horns

Sectoral horns offer wide, uniform dispersion over a wide frequency band. Made of die-cast aluminum, they are extremely rugged and hefty. The 511B and 811B are made to complement the 802-8E and 806-8B compression drivers, and are a very noticeable part of the "Voice of the Theatre" speaker systems.

	511B	811B
MINIMUM-CROSSOVER FREQUENCY:	500 Hz	800 Hz
DIMENSIONS:	10⅝" H x 23½" W x 18½" D 270 mm H x 597 mm W x 470 mm D	8⅝" H x 18½" W x 13½" D 219 mm H x 470 mm W x 393 mm D
WEIGHT:	12¼ lbs (5.6 kg)	9 lbs (4.1 kg)
FINISH:	Flat black	Flat black
COMPLEMENTARY COMPONENTS:	N501-8A, N801-8A, 802-8E, 411-8A, 416-8B, 30904	N801-8A, 806-8A, 802-8E, 411-8A, 416-8B, 414-8C, 30904

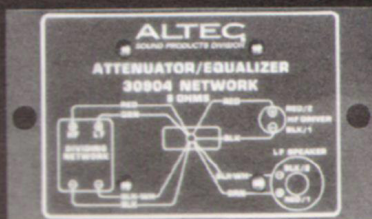
Dividing Networks

Altec precision dividing networks are designed to optimally match Altec compression drivers and horns to Altec woofers. They use exacting quality components which are held to extremely tight tolerances. To ensure this, we manufacture our own inductors—the heart of a precision network. Both the N501-8A and N801-8A are equipped with continuously variable attenuators with a 20 dB range.

	N501-8A	N801-8A
IMPEDANCE:	8 ohms	8 ohms
MINIMUM CROSSOVER FREQUENCY:	500 Hz	800 Hz
DIMENSIONS:	5½" H x 4⅞" W x 5⅝" D 140 mm H x 122 mm W x 143 mm D	5½" H x 4⅞" W x 5⅝" D 140 mm H x 122 mm W x 143 mm D
WEIGHT:	3.5 lbs (1.6 kg)	3.5 lbs (1.6 kg)
FINISH:	Flat black	Flat black
COMPLEMENTARY COMPONENTS:	802-8E, 511B, 411-8A, 416-8B, 30904	811B, 411-8A, 416-8B, 414-8C, 30904, 806-8B, 802-8E, 511B

30904 Attenuator/Equalizer

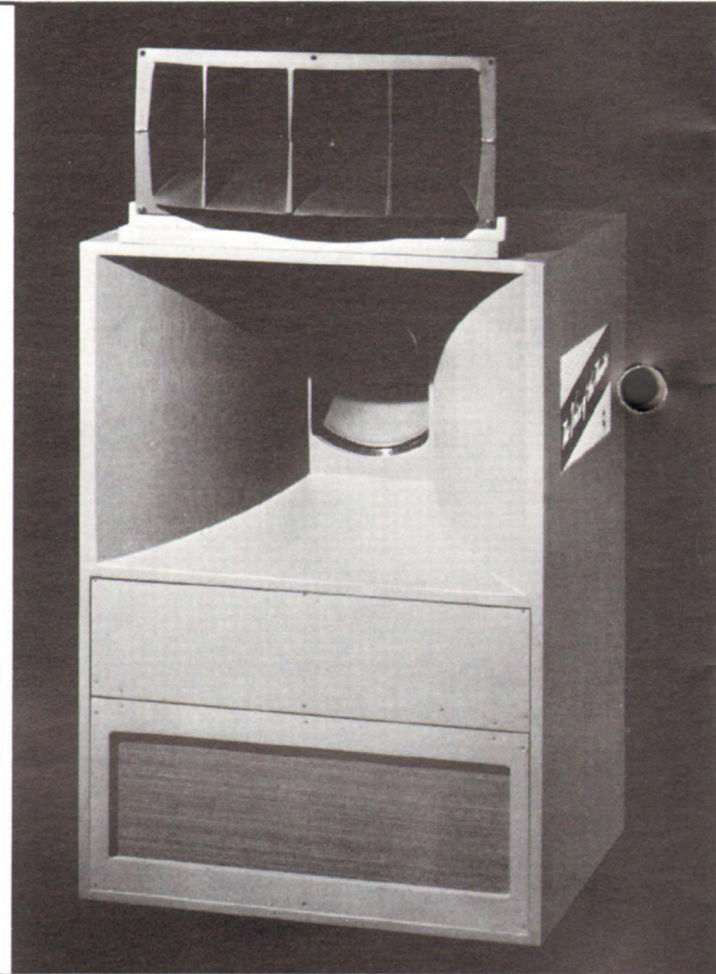
The 30904 is an inexpensive network accessory which solves many different problems. Its primary function is to match the medium-efficiency 411-8A woofer to Altec high-efficiency compression drivers, and is required when using this combination. Additionally, it can smooth midrange and extend high-frequency response in high-efficiency systems in rooms where midrange attenuation does not normally occur without high-frequency loss. Most homes fit into this category. The use of the 30904 is recommended with several Altec systems where this acoustical characteristic appears.



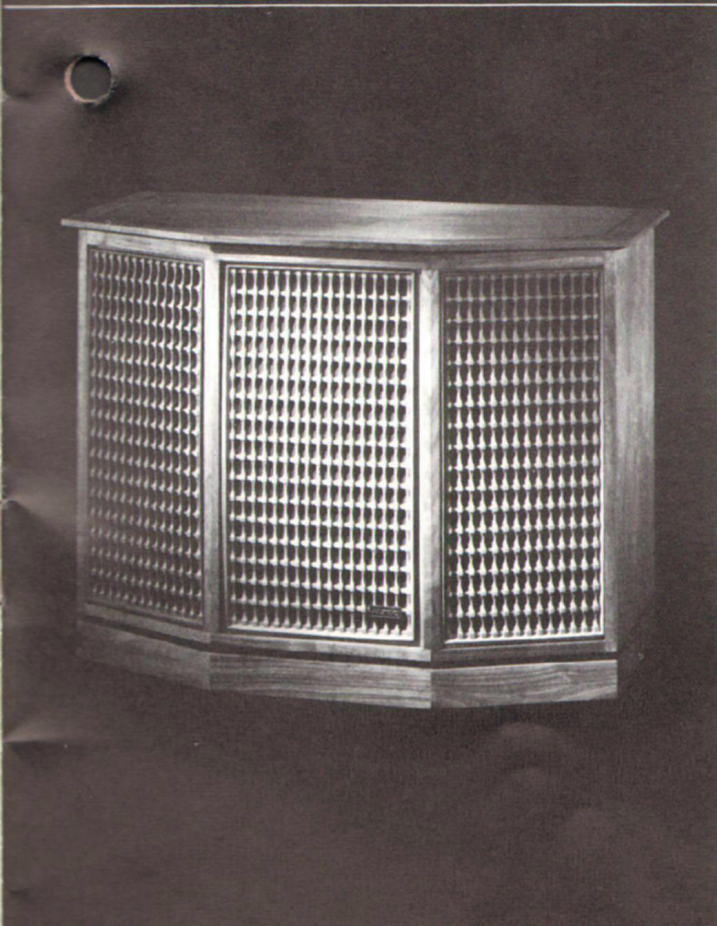
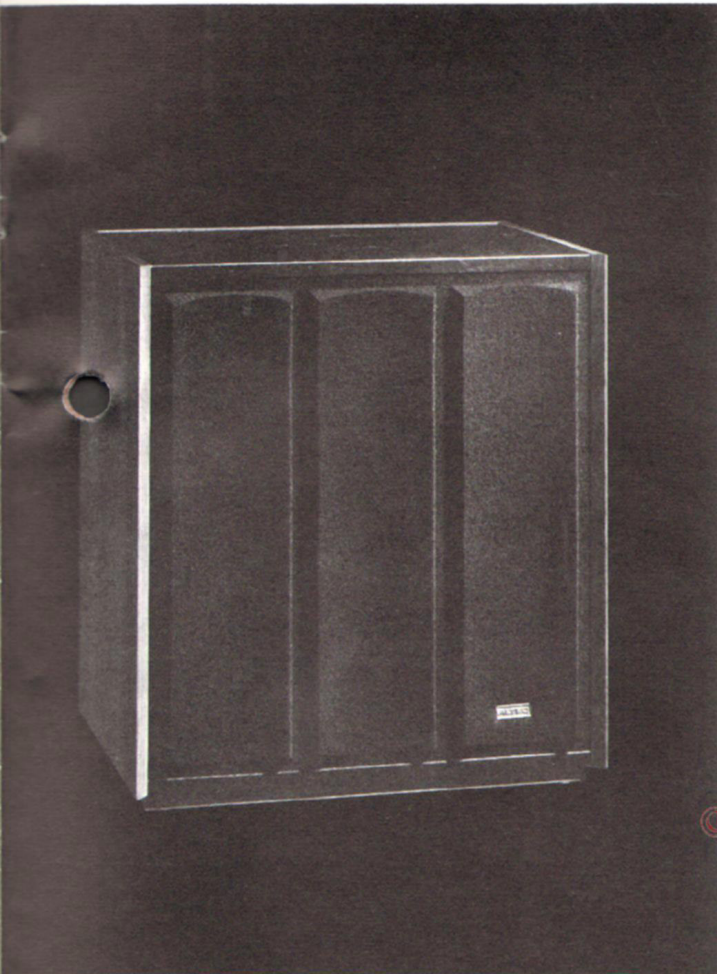
The Altec Components Matching Guide

If you are planning to build your own enclosures, but would like to know what the system will sound like before you select your component assortment, consult with your Altec Dealer and ask for a demonstration of the five systems shown below.

Once you have selected the system that is right for you, knowing which components to use is easy. The components used within a system are shown here with their comparable system.



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Altec Lansing

For nearly 40 years the name Altec Lansing has meant sound equipment of unprecedented quality. The name Altec Lansing, coined when Altec purchased the Lansing Manufacturing Company in 1941, has been a pillar in the foundation of audio history. It has stood for decades, representative of the ultimate measure of everything audio.

Altec Corporation is involved in several facets of electronics research, development and manufacturing. The responsibility for audio equipment lies with Altec Sound Products Division, of which Altec Lansing, the high-fidelity equipment line, is a vital part.

The Audio Information Group

No matter how complete a catalog is, questions always arise that can only be answered by those closely involved with the products. For that reason, we have assembled a staff of knowledgeable, experienced audio experts to answer your inquiries. We call them the Audio Information Group, and they are equipped to handle all types of inquiries regarding Altec speaker systems and component loudspeakers.

If you are interested in building your own enclosures to house Altec component loudspeakers, a 32-page booklet entitled "Loudspeaker Enclosures, Their Design and Use" is available from the Audio Information Group for \$2.00. It covers all phases of enclosure design and construction, and even includes some sample plans for time-proven Altec designs.

Should you wish to order "Loudspeaker Enclosures, Their Design and Use", or if you have any questions about Altec products, please feel free to write to the Audio Information Group, 1515 S. Manchester Avenue, Anaheim, CA 92803. We assure you that your inquiry will be answered promptly and as completely as possible.

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ALTEC
SOUND PRODUCTS DIVISION

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