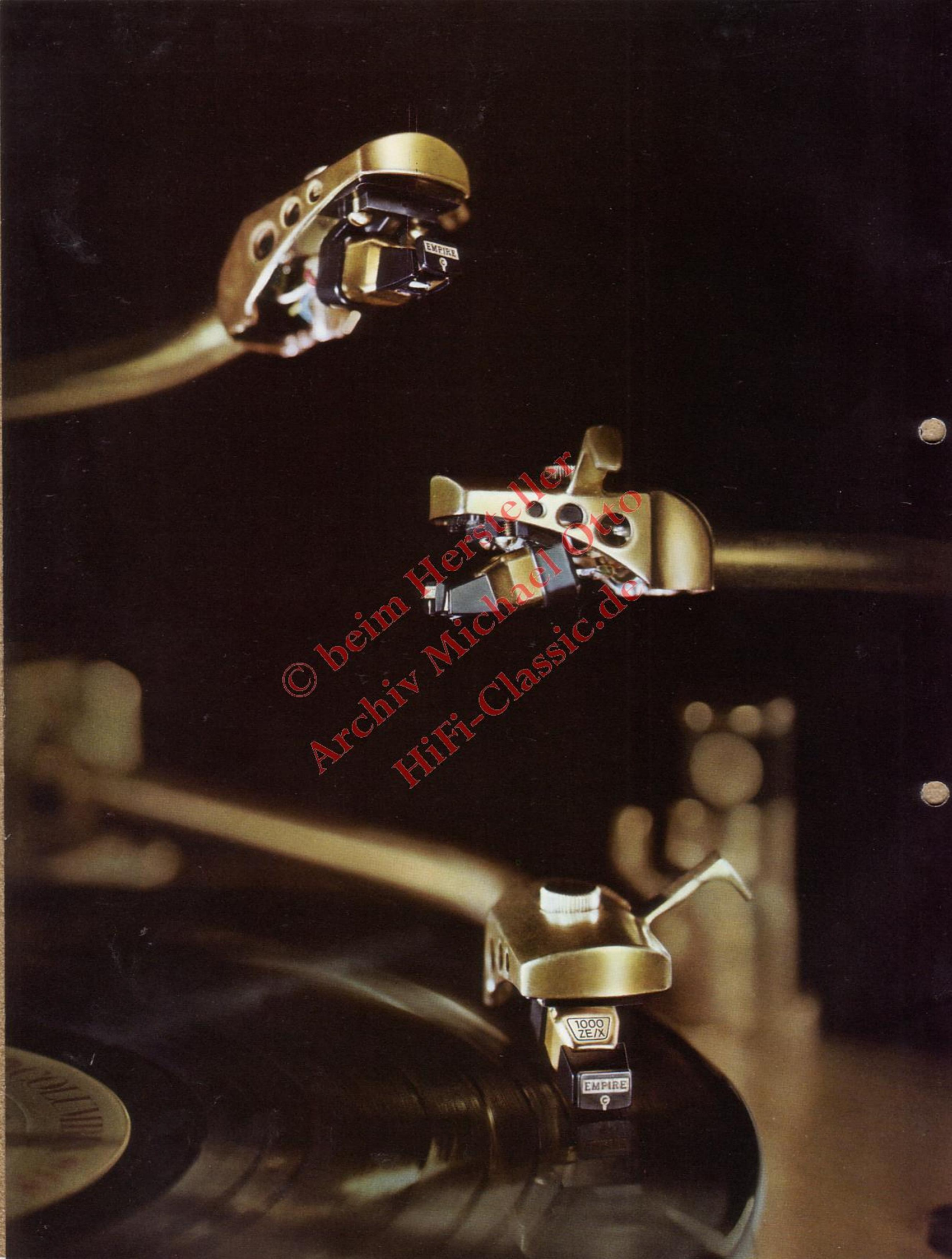


1973

EMPIRE

Guide to Sound Design

Stereo Cartridges
Turntable Systems
Speaker Systems



© beim Hersteller
Archiv Michael Otto
HiFi-Classic.de

EMPIRE

1000
ZE/1%

EMPIRE

The Long Players by Empire Approved for 4 Channel

Empire's top-of-the-line cartridges, the 1000ZE/X and 999VE/X, now feature new high performance parameters designed for 4 channel capability. With even greater frequency response and compliance than ever before, these cartridges will track at forces so low they barely touch your records.

Empire cartridges are enthusiastically acclaimed by experts the world over.



From the U.S.

Stereo Review magazine after testing 13 different cartridges rated the 999VE tops in lightweight tracking ability.

High Fidelity magazine said of the 1000ZE, "the sound is superb. The performance data among the very best."

Audio magazine, observing a remarkable 35dB stereo spread between left and right channels in the 999VE said, "Outstanding square waves. Tops in separation."

Popular Science magazine picked the 999VE hands down as the cartridge for "the stereo system I wish I owned," designed by Electronics Editor, Ronald M. Benrey.



From Great Britain

Hi-Fi Sound magazine called the 999VE "a real hi-fi masterpiece... a remarkable cartridge unlikely to wear out discs any more rapidly than a feather held lightly against the spinning groove."

Records and Recording magazine stated emphatically that the 999VE stereo cartridge is "a design that encourages the hi-fi purist to clap his hands with joy."



From Japan

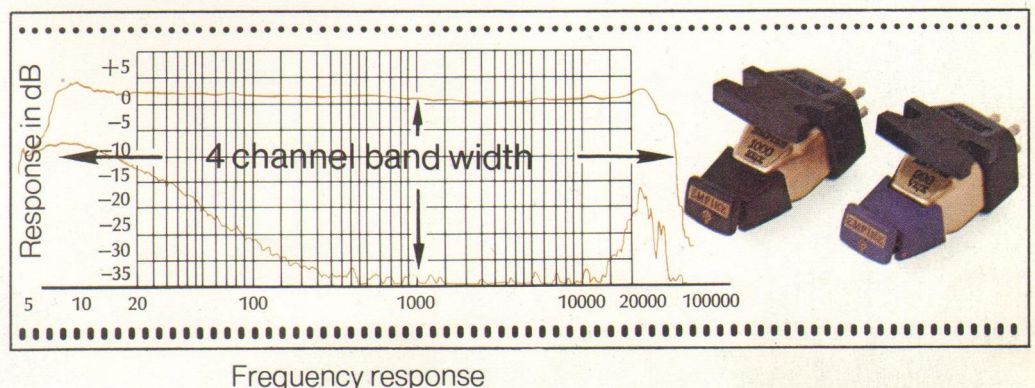
1000ZE/X wins Grand Prize for cartridges in the first all-Japan Stereo Component Competition. *Radio Gijutso* magazine.

Cartridge Technical Specifications:

999VE/X Professional — Recommended tracking force 1/4 to 1-1/4 grams.

1000ZE/X Measurement Standard — Tracks as low as 0.1 gram in laboratory playback arms.

X Designates newest improved version



EMPIRE 3

Empire Long Playing Stereo Cartridge

Color

Technical Specifications

1000ZE/X tracks as low as 0.1 gram in laboratory playback arms. Individually adjusted for flat frequency response (± 1 dB) from 20-20,000 Hz. Separation 35dB at 1 KHz; 25dB or better to 20 KHz. No electrical or mechanical peaks. IM distortion at standard groove velocity does not exceed .05% at any frequency within the full spectrum. A .2x .7 mil hand polished miniature elliptical diamond for extremely low mass.

999VE/X stereo tracking force 1/4 to 1-1/2 grams. Frequency response 6-36 KHz with usable output to 40,000 Hz. Other technical specifications same as 1000ZE/X. Uses a .2x .7 mil hand polished miniature elliptical diamond. Recommended for high performance turntables and changers only.

Surpassed in overall quality only by the 999VE/X and the 1000ZE/X, this cartridge combines high compliance with low tip mass for excellent tracking between 1/2 and 1-1/2 grams. Full frequency response is 6-32 KHz, separation 35dB. .2x .7 mil bi-radial hand polished elliptical diamond stylus.

Delivers a fine frequency response of 8-32,000 Hz in top quality manual and automatic turntables and tone arms tracking at 1-1/2 grams or less. .2x .7 mil bi-radial hand polished elliptical diamond stylus.

Designed to track from 3/4 to 1-1/2 grams in many of today's better changers. Faithfully reproduces frequencies between 10-30,000 Hz, while maintaining 35dB of channel separation. .2x .7 mil bi-radial hand polished elliptical diamond stylus.

Perfect cartridge for popular automatic record players. Tracks 3/4 to 2 grams. A fine .3x .7 mil bi-radial elliptical diamond stylus; frequency response 12-25,000 Hz.

A frequency response of 15-25,000 Hz. Tracked properly by record changers requiring up to 2 grams. 7 mil radius spherical diamond stylus.

With 1-1/2 to 3 gram tracking, this economy elliptical produces a frequency response from 15-25,000 Hz. 4x .7 mil bi-radial elliptical diamond. Great value for changers.

Model

Series

Which Empire

AR	Miracord	
XA	770H	50HII

1000ZE/X*

Measurement Standard

999VE/X*

Professional

999TE/X

Deluxe

999SE/X

Deluxe

999E/X

Deluxe

909E/X

Popular

909/X

Popular

90EE/X

Economy

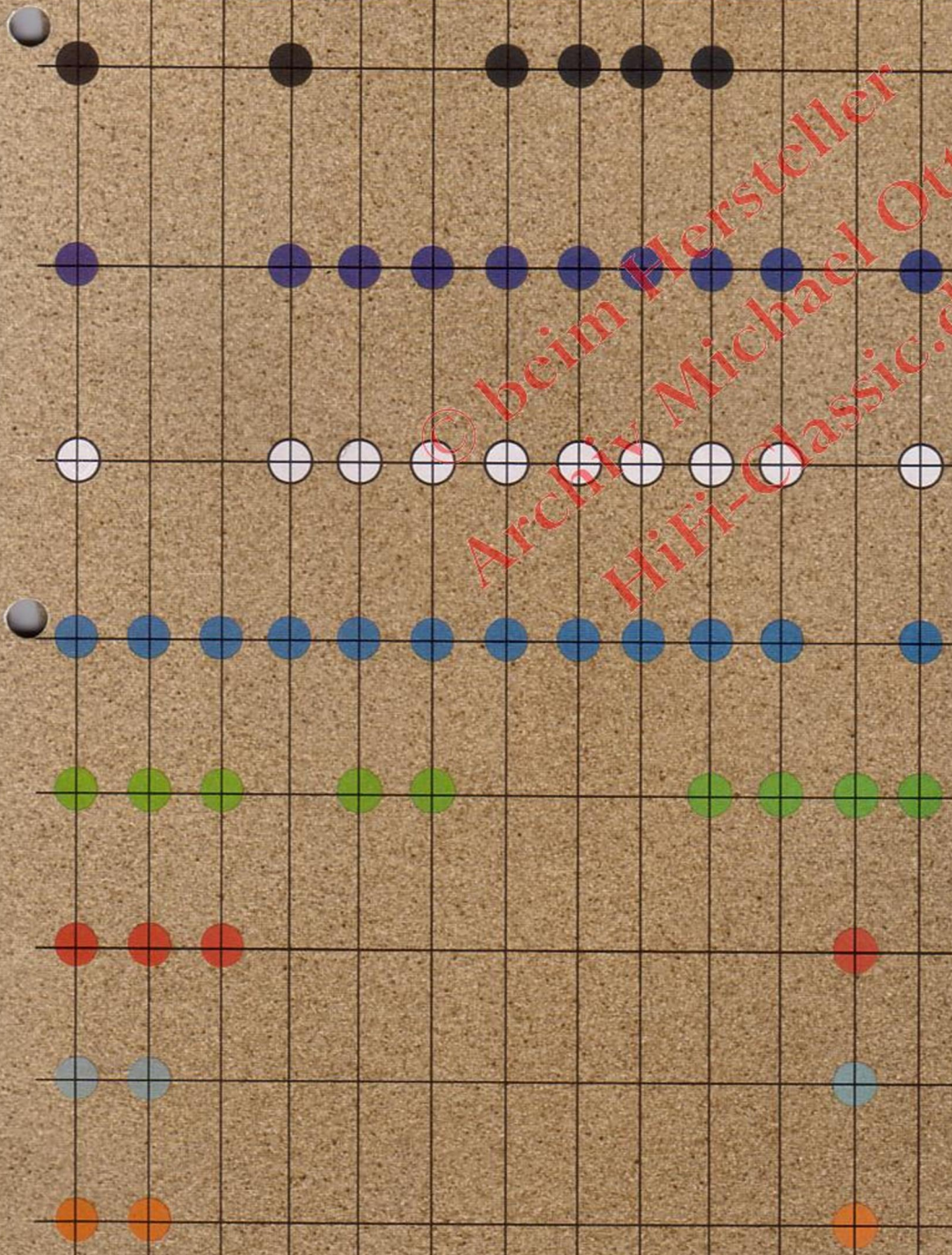
*Approved for 4 channel

X Designates newest improved version

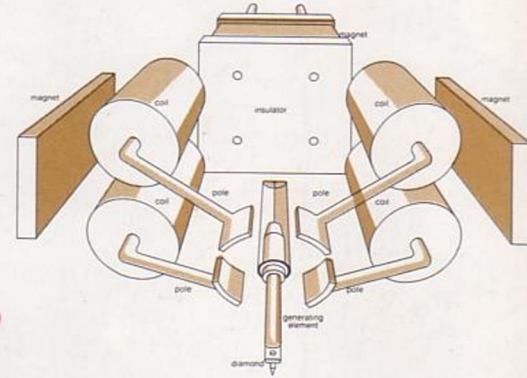
Identification Chart

cartridge should you choose for these turntables and record changers?

BSR			Dual			Empire			Garrard			PE
810	610A/X	510A/X	1229	1215S	1218	598	498A	398A	0-100	SL-72B	SL-65B	3060



The Empire Cartridge — How it Works



Since the long-playing record was invented, audio engineers have been seeking the long-playing cartridge — a playback instrument that could extract all the music from a record without doing irreparable damage to the record. The Empire cartridge is that cartridge.

Empire cartridges are different from other cartridges. In a regular moving magnetic cartridge, a magnet is attached directly to the diamond stylus and all the weight of the cartridge rests directly on the record. In Empire's variable reluctance cartridge the diamond stylus floats free of its magnets, imposing much less weight on the record surface.

Every Empire long-playing cartridge is fully shielded. Four poles, four coils, three magnets (more than any other cartridge) produce better balance and better hum rejection. Magnetically balanced to perfection, it has a signal to noise ratio of 80dB, featuring a moving magnet element and diamond stylus lever system .001 inch thick. The entire cartridge weighs only 7 grams — the ideal cartridge weight for modern compliance requirements.

There is a significant difference in the music you hear when you use an Empire cartridge. Empire's unique mechanism gives you crystal clear playback. Stereo separation of left and right channels is extremely wide. No hum, no foreign noises, no record wear.

EMPIRE 5

Photographed at Gimpel Weitzenhoffer Ltd., New York, N.Y.



The Troubador 598 II – An Unequaled Classic

The only turntable system designed exclusively for premium low tracking force cartridges that won't wear out your records. Exceeds every broadcast specification for professional playback equipment. The Troubador 598 II turntable must truly be considered a classic. It is a harmony of proven engineering principles and precision production techniques. The selection of superior raw materials for the Troubador 598 II attests to Empire's commitment to produce the finest in electronic playback equipment.

The extraordinary Troubador system features the world's most perfectly designed playback arm. It can track the world's finest cartridges as low as 0.1 gram, yet arm friction measures a hundred times less than that. With the lowest fundamental resonance frequency of any arm, an inaudible 6 Hz, acoustic feedback is unheard of even with gain and bass turned all the way up.

The coordinated anti-skating adjustment provides the necessary force for the horizontal plane. It is calibrated to eliminate channel imbalance or unnecessary record wear.

Stylus force is dialed with a calibrated clock mainspring more accurate than commercially available stylus pressure gauges.

Empire's exclusive Dyna-Lift automatically raises the arm off the record after the last band of music.

A true vertical cueing control floats the tone arm up or down from a record surface bathed in light. Choose the exact selection you want – even in a darkened room.

The cartridge mounting system allows instant cartridge demount and interchange. Empire's world famous 1000ZE/X cartridge is a standard feature on the Troubador 598 II. With the ability to track effectively at stylus forces as low as 0.1 gram (in laboratory environments), the 1000ZE/X never subjects the disc, whether vinyl pressing or master lacquer, to any visible wear or groove deformation.

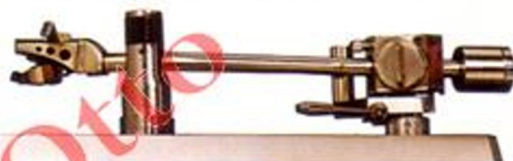
Empire's damped suspension system cradles the arm and platter. You can dance, jump or rock without bouncing the stylus off the record.

Outstanding design and performance – a 12-inch platter and 3-inch thick balanced drive flywheel (the most massive used in a home system) contribute to the lowest rumble ever tested: –90dB RRLL. Wow and flutter are an almost immeasurable .01%.

The finest motor available, a hysteresis synchronous type of exceptional design, drives the massive platter (partially hidden under the base plate).

The motor reaches full speed in less than one third of a revolution and locks in on AC line frequency to maintain speed accuracy with essentially zero error. For the perfectionist – a built-in strobe disc and pitch adjustment for precision speed control.

The flexible drive belt isolates motor from platter and is ground to \pm one tenth of one thousandth of an inch accuracy. A 5 wire circuit eliminates ground loops.



Troubador 598 II Technical Specifications:

- Speeds, 33-1/3 and 45 rpm
- Built-in 45 rpm spindle
- Push button power control
- Satin gold finish
- Overall dimensions (with base and dust cover): 17-1/2" width; 15-1/8" depth; 8" height
- Includes Empire's 1000ZE/X cartridge, satin walnut base, and plexiglas dust cover

Inside the Empire Speaker System

No component in your home music system is more crucial to sound reproduction than the quality of your speakers. The speaker system receives the complex mechanical waveforms of your records, translates them into electronic impulses, and amplifies and converts them into the sound you hear.

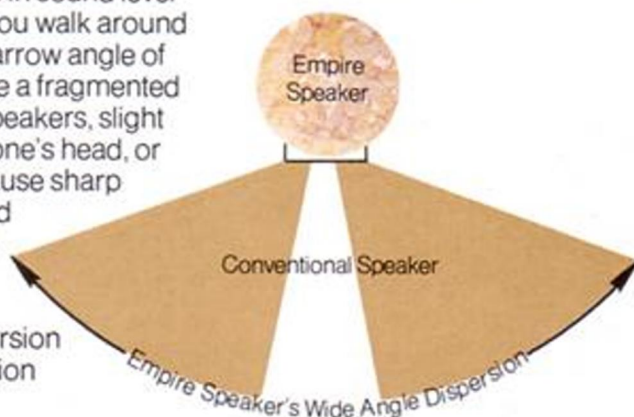
Heavy magnet assemblies are the key to Empire's superlative sound reproduction. Each amplified impulse from your playback system causes a precision wound voice coil to move as its attraction to a powerful permanent magnet is varied. The driver diaphragm, coupled to the voice coil, vibrates the surrounding air with precise control. The sonic waves created become full-bodied tones indispensable to faithful sound reproduction.

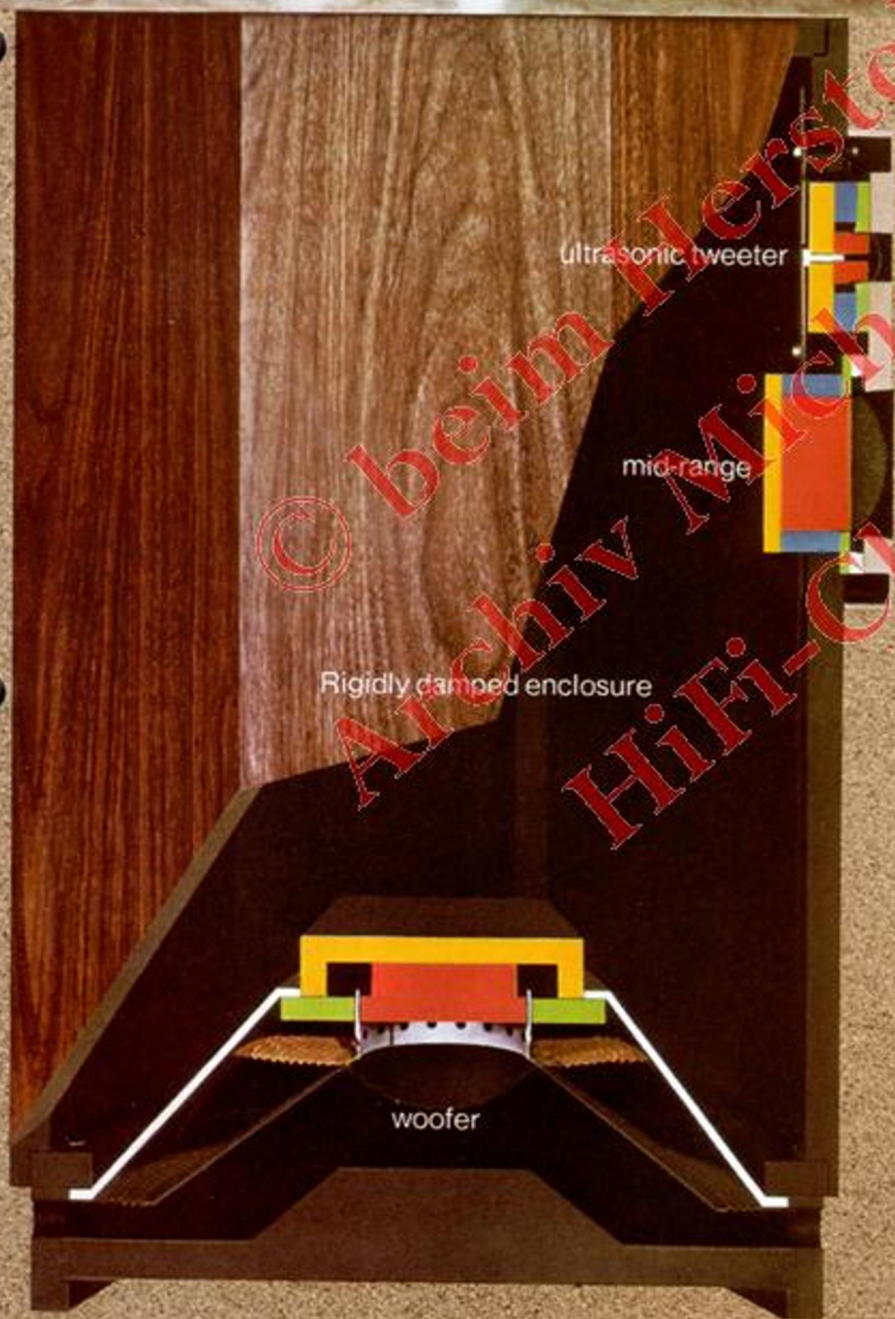
The larger the speaker magnet, the more driving force it exerts on the voice coil and the more perfectly it reproduces every nuance of music. Every Empire driver is constructed around the largest magnetic structure to be found in any speaker of comparable price. These drivers are precision engineered for superb voice coil control, unsurpassed linear response, and distortion-free musical reproduction.

Empire speakers are specially constructed to give you tone quality second only to a live performance. The magnetic structures in these speakers can reproduce frequencies as high as 20,000 Hz. Few people can directly hear pure tones this high. These very high frequencies, however, are often necessary as harmonics to complement lower audible frequencies required to reproduce the exact character of each instrument. With an Empire speaker system a bassoon sounds like a real bassoon and a piano like a real piano.

Try This Simple Test

Take a few moments to try this simple test. Walk in an arc around an Empire speaker. You'll notice no change in sound level of bass, mid-range, or highs. If you walk around ordinary speakers with only a narrow angle of sound transmission, you'll notice a fragmented tone. With these conventional speakers, slight shifts of position, the turning of one's head, or even leaning to one side may cause sharp changes in the listening level and tone. But with Empire speakers, full frequency and separation are assured by the exclusive Empire wide-angle sound dispersion system, regardless of your position in the listening area.





Special Empire Features

Our exclusive sonic column is a totally damped and rigid speaker enclosure, more rigid than any "box." There are no cabinet vibrations to color the sound.

The woofer faces downward, close to the reflecting floor surface, feeding through a front horn with a full circle aperture throat. This construction provides 360 radiation for full dispersion of sound. It puts the lows on the bottom where they belong and spreads them across the room like a carpet of sound.

Perfect 3-way systems with massive woofer, mid-range, and tweeter drivers are used in all Empire speakers.

Empire speakers are probably the most powerful home speakers in use today. Each can handle at least 75 watts of power per channel without burnout or overload — more than enough power to fill a large auditorium. No orchestral crescendo will ever distort or muddy the great Empire sound.

A low mass voice coil in our ultrasonic tweeter extends frequency response beyond audibility. A compression type mid-range direct radiator creates spectacular presence and realism. The Empire wide angle sound dispersion system is unsurpassed by ordinary speakers.

Empire's unique design means that you can use your speakers anywhere in your room. They need not be placed in corners or against walls. The Empire speaker system affords complete stereophonic or quadrasonic flexibility and fidelity. Empire's concert hall effect allows you to sit or move anywhere in the room, no fixed position to hamper your listening pleasure. Volume and tone quality remain constant virtually everywhere in this total Empire environment of sound.



Grenadier 9500MII Technical Specifications:

- Frequency response: 20-20,000 Hz
- Components: 6 drivers in dual 3-way systems
- Music power rating: more than 500 watts
- Continuous power ratings (in parallel, 4 ohms):
20-450 Hz... 200 watts RMS; 450-5,000 Hz...
100 watts RMS; 5,000-20,000 Hz... 40 watts RMS
- Distortion at 10 watt level: 100 Hz... 0.75%;
1,000 Hz... 0.15%; 10,000 Hz... 0.05%
- Overall dimensions: 30" width; 20-3/4" depth;
28" height; 125 lbs. weight
- Finish: satin walnut

The New Grenadier 9500MII — Today's Super Speaker Perfect for Tomorrow's Sound

Empire's top-of-the-line speaker, the new Grenadier 9500MII, is engineered and constructed differently from conventional speakers. With twice the usual number of drivers, it reproduces sounds that become a distinctive listening experience.

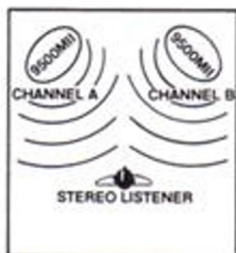
The six driver, three-way system uses two downward facing 12-inch front-loaded woofers (acoustically equivalent to an 18-inch driver) for the kind of bass you can feel! The 9500MII also features our exclusive "Sound Beacon" — laser-like beams that pulsate and throb in rhythm with the music.



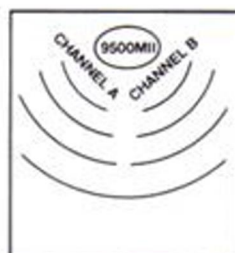
There are two wide-angle dispersion assemblies in the Grenadier 9500MII which produce a sound radiation of 180°. Two ultrasonic domed tweeters, two direct radiator mid-ranges, and two down-facing woofers make the 9500MII speakers thunder through house or auditorium with a phenomenal 500 watts of undistorted music or pulse power. Each has a built-in automatically resetting circuit breaker that prevents overload and burnout regardless of how hard you drive them.



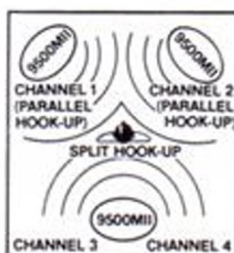
Empire's Grenadier 9500MII offers versatility that other speakers cannot match. In cramped quarters one speaker becomes two! With electrically isolated speaker inputs, each of two amplifier channels powers its own three-way system. The Grenadier 9500MII is the perfect speaker for stereo or 4 channel sound.



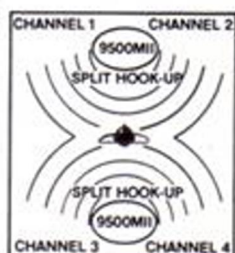
Use a parallel pair for super power stereo.



Use one speaker in split hook-up for stereo in cramped quarters.



How to use three speakers for 4 channel sound.



In cramped quarters use only two speakers for 4 channel sound.



6000M

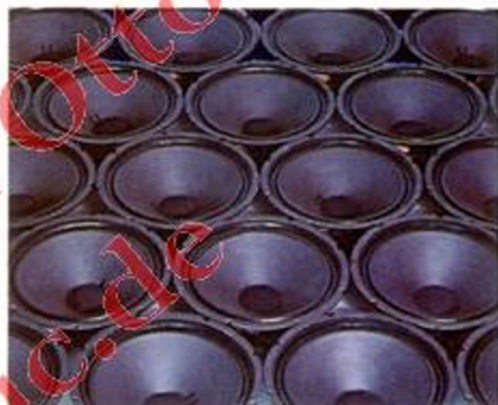
7500MII

Grenadier 7500MII Technical Specifications:

- Frequency response: 25-20,000 Hz
- Components: 15-inch high compliance woofer, domed mid-range direct radiator, ultrasonic domed tweeter, coupled with Empire's wide-angle acoustic dispersion system
- Crossovers: 450 and 5,000 Hz
- Controls: 3 position treble response switch
- Minimum power requirement: 20 watts RMS
- Maximum power handling capacity: 100 watts, undistorted per channel
- Impedance: 8 ohms
- Overall dimensions: 20" diameter; 26-3/4" height
- Finish: satin walnut or antique oak

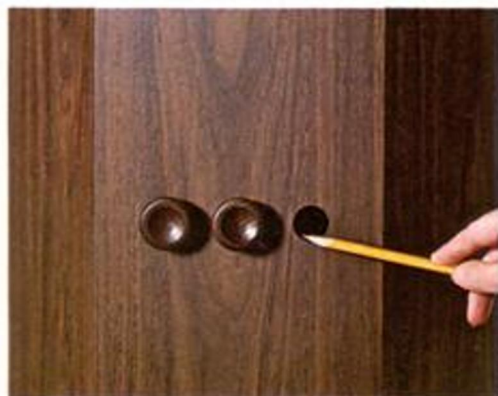
The Grenadier 7500MII — Your Personal Concert Hall

Favored by interior designers and audio critics alike, the Grenadier 7500MII is a perfect synthesis of form and function for today's larger-than-life sound. A pair of Grenadier 7500MII speakers can accommodate any fine amplifier or integrated receiver. These speakers spectacularly reproduce any program material — concert classic and powerful rock are driven with equal force and clarity. The new 7500MII features Empire's laser-like "Sound Beacon" and automatic circuit breakers.



The Grenadier 6000M — Super-Compact "Music in the Round"

The Grenadier 6000M is the only omni-directional speaker system of its kind priced under \$110. To provide a Grenadier for every budget, we reduced the size, not the quality, of our model 6000M. Despite the price, the 6000M is a complete three-way system featuring Empire's exclusive total "stereo-in-the-round" design. In the Grenadier tradition, there is no ugly, dust-catching grille-cloth. Empire designers and engineers have created the handsome wide-angle sonic lens that adorns this elegant cabinet. It has a downward-facing 10-inch woofer, a mid-range radiator and a wide-angle ultrasonic tweeter, all in an absolutely rigid, non-resonating cylindrical cabinet. With a power handling capacity of 75 watts per channel, it can easily handle the powerful receivers available today.



Empire's Dynamic Reflex Stop System
The bass and treble of your 6000M speaker can be adjusted to suit your individual room acoustics. Maximum bass is obtained with all stops out.

Grenadier 6000M Technical Specifications:

- Frequency response: 30-20,000 Hz
- Nominal impedance: 8 ohms
- Overall dimensions: 18" diameter; 24-3/8" height
- Finish: satin walnut or antique oak



Introducing the Jupiter 6500— Empire's Newest Addition to Modern Musical Living

The virtually indestructible, non-resonating enclosure for the new Jupiter 6500 speaker is made of Uniroyal Rubicast, a new space age acoustic material that can withstand wind, rain, and sun. Its rugged surface is marproof and spillproof, making it perfect for today's casual living.



Jupiter 6500 Technical Specifications:

- Frequency response: 30-20,000 Hz
- Impedance: 8 ohms
- Power handling capacity: 75 watts music power per channel
- Crossover frequencies: 450 Hz and 2500 Hz
- Three way system: 12-inch woofer, mid-range radiator, ultrasonic tweeter
- Overall dimensions: 17-1/4" diameter; 25-1/2" height; 40 lbs. weight
- Finish: gloss white

This ideal three-way system† uses Empire's heavy 12-inch downward facing woofer for bass you can feel as well as hear, a powerful mid-range for crisp, clear alto and voice tones, and a lightweight ultrasonic tweeter with wide angle dispersion. The power of the Jupiter 6500 speaker is awesome either indoors or out. It can deliver a full 75 watts of power without overload, burnout, or strain. Its all-around sound is simply phenomenal, radiating to all directions: front, rear, left or right.

† Jupiter speaker drivers are completely weatherproofed for indoor or outdoor use.

An Empire Guide to Sound Performance

A recommended sampling of stereo and 4 channel recordings that provides a true test of full-frequency performance.

Classical and Operatic

Bach: Organ Favorites/E. Power Biggs	Columbia	MS-6261
Bizet: Carmen/Price, Corelli, Merrill, Freni; Vienna Philharmonic, Karajan	RCA Victor	LDS-6164
Dukas: The Sorcerer's Apprentice/Israel Philharmonic, Solti	London	STS-15005
Holst: The Planets/New Philharmonia Orchestra	Angel	36420
Mahler: Symphony No. 1/Boston Sym., Leinsdorf	RCA Victor	LSC-2642
Prokofiev: Alexander Nevsky/Chicago Sym., Reiner	RCA Victor	LSC-2395
Rachmaninoff: Rhapsody on a Theme of Paganini/Op. 43/Boston Pops	RCA Victor	LSC-2678
Stravinsky: Firebird Suite/London Sym., Stokowski	London	SPC 21028
Tchaikovsky: 1812 Overture/Phila. Orch., Ormandy	Columbia	MS-6073

On the Lighter Side

Clockwork Orange/Soundtrack	Warner Bros.	2573
Hair/Original Broadway Cast	RCA Victor	LSO-1150
Oliver/Original Broadway Cast	RCA Victor	LSOD-2004
Pops Roundup/Boston Pops, Fiedler	RCA Victor	LSC-2595
That Philadelphia Sound/Phila. Orch., Ormandy	Columbia	MXZ-786
West Side Story/Soundtrack	Columbia	OS-2070

Jazz, Popular, Vocal and Miscellaneous

Great Songs of Love and Faith/Mahalia Jackson	Columbia	CS-8624
In the Wind/Peter, Paul, and Mary	Warner Bros.	(S) 1507
Johnny Puleo and His Harmonica Gang/Vol. 2	Audio Fly	5859
Non Stop Dancing/James Last Band	Polydor	237495
South of the Border/Herb Alpert	A & M	(4) 108
Switched-On Bach	Columbia	MS-7194
Time Out/Dave Brubeck	Columbia	CS-8192



Contemporary

Abraxas/Santana	Columbia	KC-30130
Blood, Sweat & Tears	Columbia	CS-9720
Creedence Clearwater Revival	Pendulum/Fantasy	8410
Close to the Edge/Yes	Atlantic	SD-7244
Emerson, Lake & Palmer	Cotillion	SD-9040
Exile on Main Street/Rolling Stones	Rolling Stone Rec.	COC-8-2900
Gold/Neil Diamond	Universal	73084
Honkey Chateau/Elton John	Uni	93135
Joe Cocker	A & M	4224
John Barleycorn Must Die/Traffic	U.A.	5504
Let It Be/Beatles	Apple	34001
Parsley, Sage, Rosemary & Thyme/ Simon & Garfunkel	Columbia	CS-9363
Pearl/Janis Joplin	Universal	73096
Summer Breeze/Seals and Crofts	Warner Bros.	BS-2629
Tarkio/Brewer & Shipley	Kama Sutra	KSBS-2024
The Turning Point/John Mayall	Polydor	24404

4 Channel

Tchaikovsky: Symphony No. 4 in F minor/ Stokowski, American Symphony Orchestra	Vanguard*	VSQ30001
The Fantastic Philadelphians, Vol. 2/Ormandy	RCA**	ARD1-0017
Touch/Morton Subotnick	Columbia*	MQ31019
No, No, Nanette/Original Cast	Columbia*	SQ30563
Company/Original Cast	Columbia*	SQ30993
Godfather/Hugo Montenegro	RCA**	APD1-0001
Come From The Shadows/Joan Baez	A & M*	8Z54339
Berlioz: Requiem/Utah Sym., Maurice Abravanel	Vanguard*	VSQ300067
Mancini Salutes Sousa	RCA**	APD1-0013
The Fantastic Philadelphians, Vol. 1/Ormandy	RCA**	ARD1-0002
Symphony No. 15, Shostakovich	RCA**	ARD1-0014

*Matrix 4 Channel; **Discrete 4 Channel



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