

TA-4A

High Definition Tuner Amplifier

Focus On Excellence

In concept, in scope, and in execution, the Nakamichi TA-4A High Definition Tuner Amplifier stands alone. With its 100-watt per channel STASIS power amplifiers, it extracts the last iota of performance from today's finest loudspeakers. With its eight audio inputs - three with video switching capability - it provides the flexibility required for a complete home entertainment system. And, with its system-wide, multi-room remote control, it offers you armchair operation of itself, two Nakamichi cassette decks and a CD Player. The Nakamichi TA-4A - An Audio/Video Receiver with the Focus on Excellence.

- STASIS Power Amplifiers • System Remote Control With Multi-Room Expansion Capability
- Multi-Regulated Isolated-Ground Power Supply • Nakamichi Concept Tone Controls & Variable Loudness
- MM/MC Phono Preamp With Defeatable Subsonic Filter • Independent Monitor/Record Selectors
- Quartz PLL Tuner With 10 Presets



TA-4A High Definition Tuner Amplifier - Centerpiece of Home Entertainment

From Your Armchair

The TA-4A is equipped with one of the most versatile and well conceived remote control systems available - the RM-4TA. The RM-4TA is derived from the remote-control system developed for the world-renowned CA-7A Control Amplifier. Like the CA-7A, remote control of volume is accomplished with a motor-driven audiophile-quality potentiometer (not an electronic attenuator), so you're guaranteed perfect sound quality.

Not only does the RM-4TA offer armchair control of every major TA-4A amplifier function - Power, Volume, Mute, Source and Speaker Selection - and every major tuner function - Band and Manual or Auto-Seek Station Selection - it can operate a complete Nakamichi audio system

(including a CD player and two cassette decks) by itself! You have control of every major function on each deck - Fast Forward, Rewind, Forward Play, Reverse Play (on two-way decks), Record, Cue, Stop and Pause - and can even adjust playback azimuth on the Tape-1 deck if it's equipped for remote azimuth adjustment.

On the CD player, you command Fast Forward and Reverse, Skip Forward and Reverse, Disc Scan, Stop, Pause, Play, Random Play and Disc Load.

Every current Nakamichi CD player and remote-control cassette deck (as well as many older models) can be operated from the TA-4A via connection to its System Remote Output jacks.

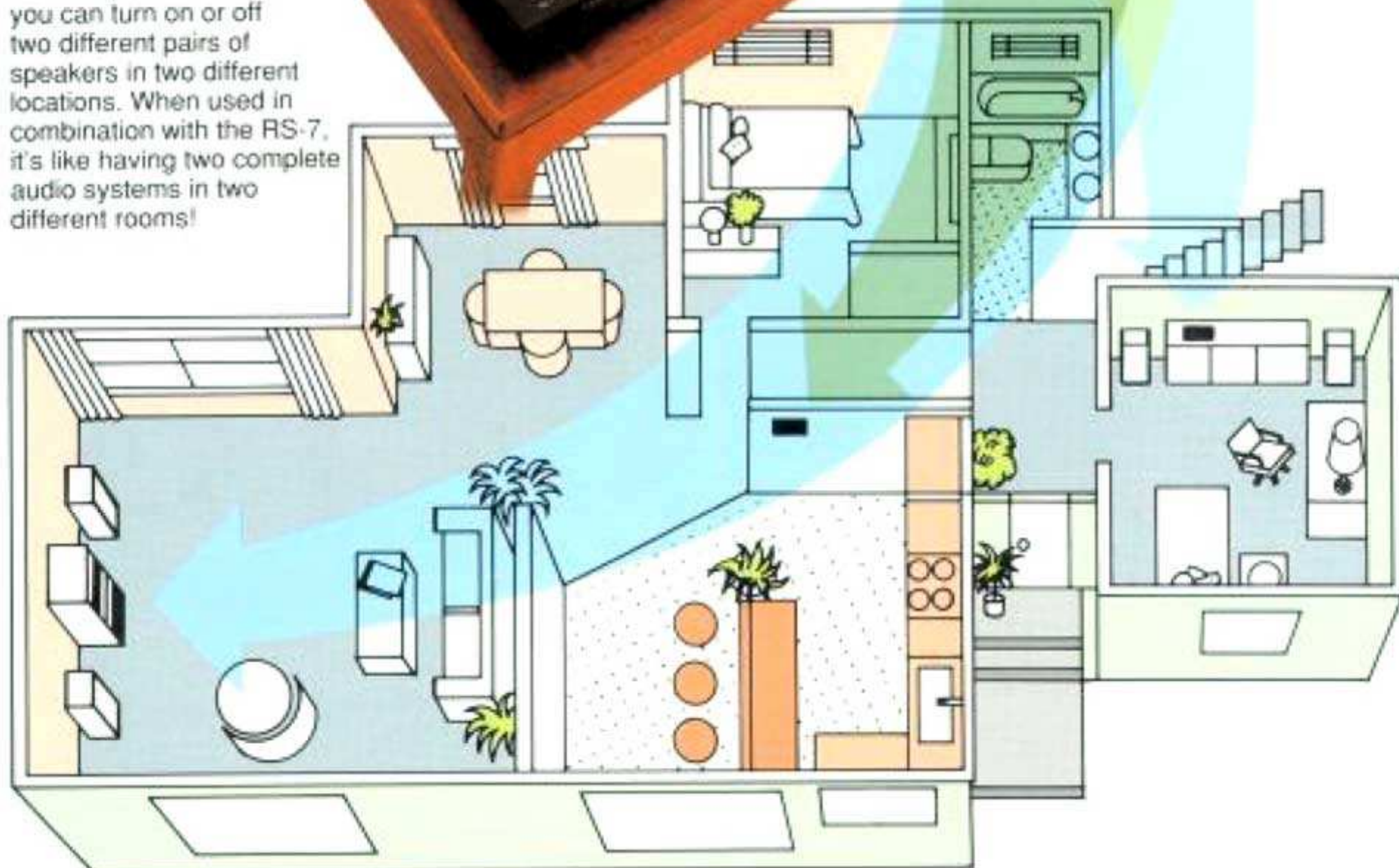


True Multi-Room Remote Control

The optional Nakamichi RS-7 Remote Sensor lets you control your system from almost anywhere in your home. As many as three RS-7's can be wired together so you're not limited to control from just one room, and with the TA-4A's Remote Speaker Selector, you're not limited to enjoying your music in just one room, either! By placing the TA-4A's Speaker Selector in the Remote position, you can turn on or off two different pairs of speakers in two different locations. When used in combination with the RS-7, it's like having two complete audio systems in two different rooms!



The RS-7 comes with a surface-mount bracket so you can attach it to the wall or place it on a shelf as you desire. An optional RSA-1 Flush Mount Kit permits mounting the RS-7 within a standard-thickness wall for permanent installation.

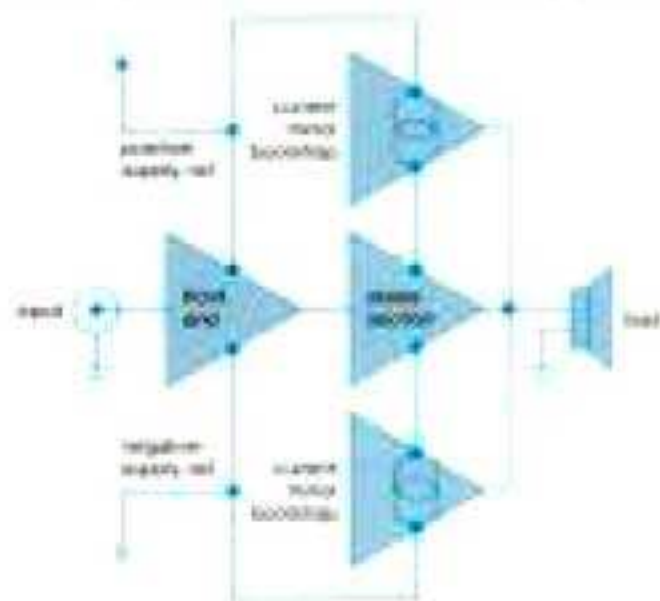


STASIS - Inherently Stable/Uniform Impedance Amplifier

You notice the difference immediately. The Nakamichi TA-4A sounds better than other receivers - more transparent, more detailed, more defined. Your speakers never sounded this good before! The reason is *STASIS* - a radically different power amplifier that *neither needs nor uses global negative feedback*.

By applying feedback, designers can reduce distortion to the vanishing point - on the test bench with load resistors - not in the real world with speakers! Increased feedback increases the chance of instability so designers "protect" the amplifier with an output coil. As a result, response and distortion with a loudspeaker are often worse than specifications suggest.

With *STASIS*, two amplifiers drive each speaker: a top-quality low-power stage with low output impedance, and a high-impedance bootstrap that provides muscle. Neither uses global feedback. The low-impedance amplifier delivers just enough power to correct distortion in the bootstrap - perhaps 1% of the total - so it operates in a "state of equilibrium" (*STASIS*) condition and generates almost no distortion. However, because of its low output impedance, it determines the output voltage and so *total power is as distortion-free as STASIS* itself. Without global feedback, the amplifier is *inherently stable* and doesn't need an output coil, so *impedance is uniform* and *response and distortion are the same with a speaker as with a test resistor*.

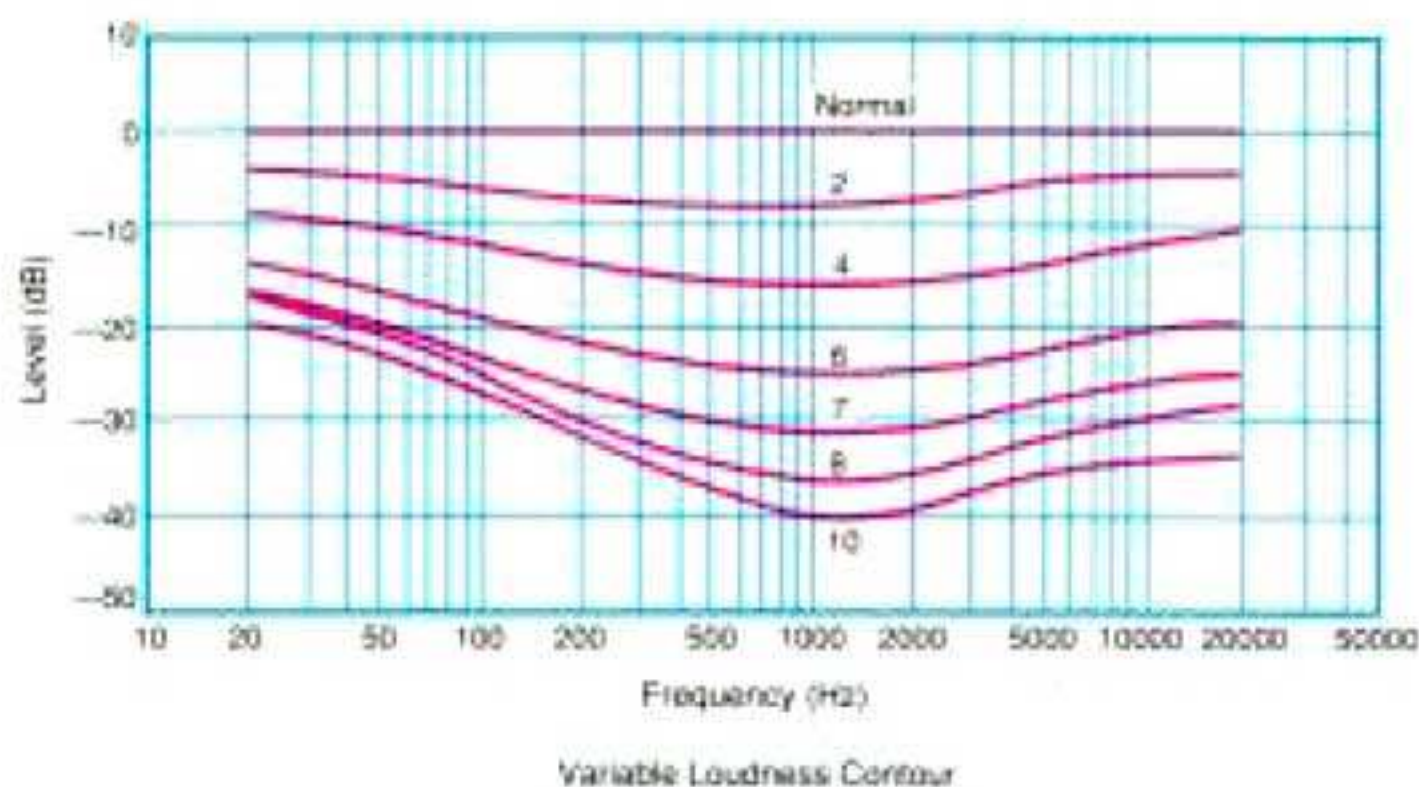


STASIS Configuration

Controls of Uncommon Competence

Nakamichi recognizes that speakers and listening rooms aren't perfect and, even if they were, humans do not hear equally well at all levels and frequencies. So, the TA-4A has *Bass, Treble and Loudness controls...but with a Nakamichi difference!*

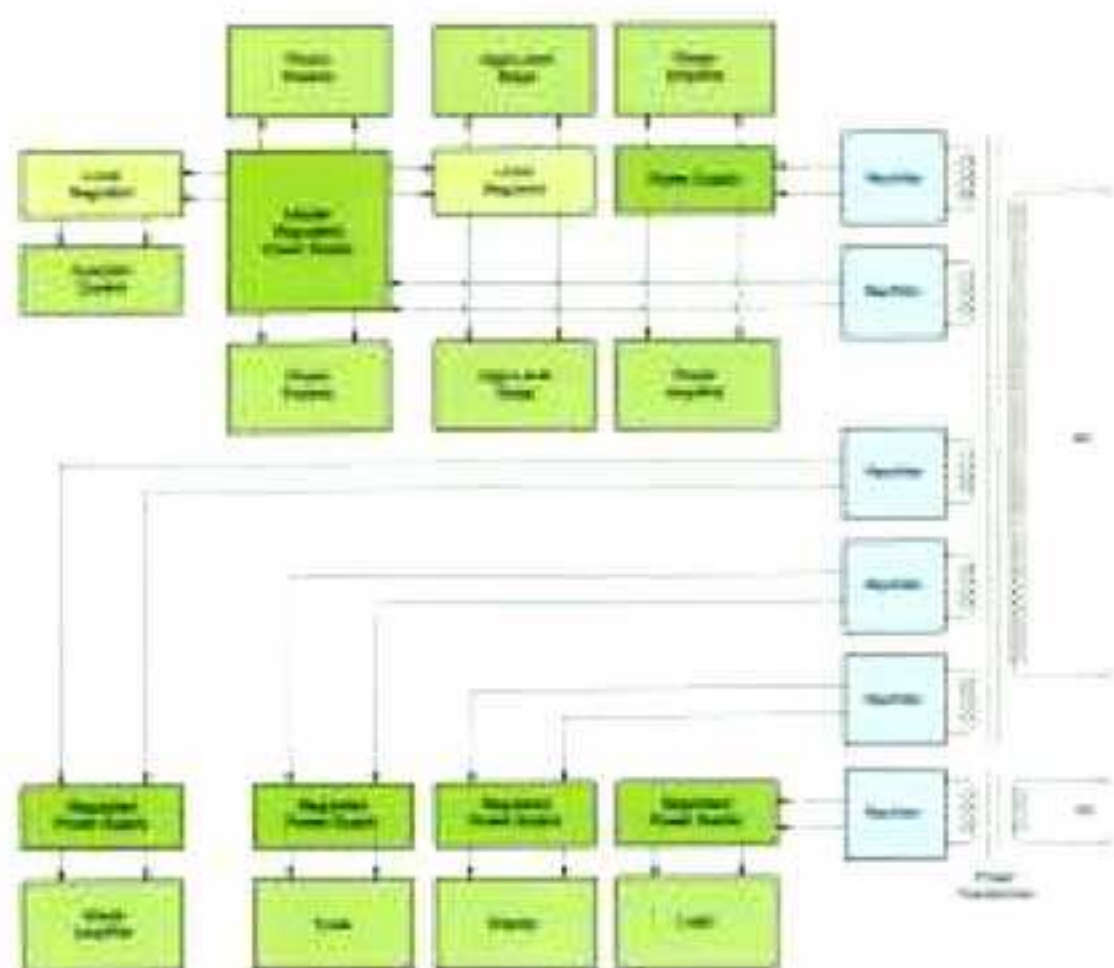
Unlike those in ordinary receivers, TA-4A tone controls are useful rather than flashy and can be defeated for absolutely flat response when you desire. The range is purposely restricted to the frequency extremes so you can make subtle corrections in the deep bass and high treble without altering the midband. Rather than a fixed loudness contour that, by its nature, cannot be appropriate for all listening levels, the TA-4A has a *Variable Loudness* control. Set the Volume for the maximum listening level that you desire and, as you reduce level with the Variable Loudness control, it compensates for changes in hearing sensitivity over a 40-dB range.



Variable Loudness Contour

Multi-Regulated Isolated-Ground Power Supply

Component systems often sound better than ordinary receivers because of the isolation provided by their independent power supplies. The TA-4A Multi-Regulated Isolated-Ground Power Supply provides equivalent performance in a receiver! It has *independent transformers for the logic and audio circuits* to prevent digital noise from affecting musical purity. The main transformer has *five secondary windings* each with a rectifier/filter and, with the exception of the power-amp supply, an independent regulator. These prevent display, tuner and video noise from contaminating the music. To prevent interstage coupling, local regulators isolate the high-level, function-control and phono-preamp circuits. These Isolated-Ground Discrete Circuits - a Nakamichi exclusive - function by passing current between the supplies rather than between each supply and ground. There's no current flow in the ground system so a noise-free reference is maintained for each circuit. The audible result is less noise, exceptionally stable imaging and outstanding definition.



TA-4A Multi-Regulated Power Supply

The TA-4A phono preamp mates perfectly with any moving-magnet (MM) or moving-coil (MC) cartridge. Its dual-FET differential input is directly coupled to the cartridge for maximum signal transfer and minimum noise. Tight-tolerance components ensure accurate equalization and vanishingly low distortion while a choice of gain in the MC mode (32 dB or 24 dB) ensures optimum dynamic range with either low- or high-output cartridges.

When you're playing a warped record, switch in the TA-4A's *sharp-cutoff subsonic filter*. It's part of the phono preamp so (unlike other filters) it prevents tape overload when dubbing a disc as well as speaker overload when listening to it. The filter uses the Nakamichi "gyrator" principle to provide the flat response and sharp cutoff of an L-C filter without the noise and distortion that such filters can introduce.

The TA-4A has an exceptionally flexible input, output and tape-dubbing arrangement too. It handles eight audio sources (three of which have companion video inputs), permits dubbing from any Tape input to the other two, and audio recording from any audio-only source to all three tape decks. Audio-Video recording from either the Video-1 or Video-2 input set to the Tape-3/VCR output is easily performed. Pre-Out/Main-In jacks permit you to connect a surround-sound processor, powered subwoofer or other audio signal processor at the ideal point in the signal path. A second set of Pre-Out jacks let you use auxiliary power amps in other rooms.

Quartz Synthesized Tuner With High-Q Twin Varicap Diodes

The TA-4A offers you a choice of tuning - auto-seek to search for strong stations, manual to tune weak ones, and a 10-preset memory that gives you direct access to your favorite stations. Thanks to automatic gain control via its second gate, the TA-4A's Dual-Gate MOS-FET RF amplifier combines high sensitivity with excellent overload protection - attributes that often are mutually exclusive.

(continued on back page)

Four High-Q Twin-Varicap diodes tune the receiver. One locks the oscillator to a quartz reference for precise tuning; the others tune the RF amplifier and mixer for better selectivity. In Nakamichi tradition, the TA-4A's quartz reference frequency is higher than normal to provide better signal-to-noise ratio and lower distortion. To prevent interference between the RF and audio circuitry, the tuner operates from an independent power supply and has output buffers that provide a "floating-ground" connection with the other audio circuitry.

Audio/Video Operation

The TA-4A is far more than an audio receiver. It is the centerpiece of your entire home-entertainment system.



It accommodates three video sources and can record from any two onto the third. Thus, you can have a LaserDisc player, and a satellite or broadcast tuner and record from them onto a VCR connected to the Tape-3/VCR terminals. Or, you can swap the LaserDisc player or tuner for a second VCR and dub tape-to-tape. The Video Monitor and video-recording outputs are separately buffered by 3-stage discrete amplifiers for perfect viewing and dubbing.

TA-4A Specifications

Power Amplifier	
Continuous Average Output Power	100 watts per channel into 8 ohms, both channels driven, 20 - 20,000 Hz at no greater than 0.1% THD
Dynamic Output Power	135 watts/channel into 8 ohms 170 watts/channel into 4 ohms
Power Bandwidth	5 - 60,000 Hz
Frequency Response	20 - 20,000 Hz ± 0.5 dB 5 - 85,000 Hz ± 0.3 dB
Power Amplifier S/N Ratio (A wtd. Input Shorted)	Better than 100 dB re Rated Power Better than 83 dB (IHF A:202)
Peak Output Current Capability	28 A per channel
Preamplifier	
Sensitivity / Impedance (for rated output)	Phono MC: (32 dB) 60 μ V / 100 ohms Phono MC: (24 dB) 160 μ V / 100 ohms Phono MM: 2.5 mV / 47 k ohms CD/Tape: 150 mV / 20k ohms Phono MC: (32 dB) 4 mV (24 dB) 10 mV Phono MM: 160 mV
Maximum Input Level (1 kHz)	Phono MC: Less than 0.007% Phono MM: Less than 0.002%
Total Harmonic Distortion (1 kHz. to Rec Out at 1 V)	30 - 20,000 Hz ± 0.5 dB
RIAA Deviation (MM or MC)	Phono MC: Better than 70 dB Phono MM: Better than 78 dB
Signal-To-Noise Ratio (to speaker output per IHF A:202)	20 Hz. ± 10 dB
Bass Control Range	20 kHz. ± 10 dB
Treble Control Range	20 Hz. ± 20 dB; 20 kHz. ± 5 dB
Loudness (at maximum attenuation)	20 Hz. ± 12 dB/octave
Subsonic Filter (Phono only)	
FM Tuner	
Frequency Range	87.5 - 108.0 MHz in 100-kHz steps
IHF Usable Sensitivity (Mono)	11.0 dBf / 1.9 μ V
50-dB Quieting Sensitivity (Mono)	14.7 dBf / 3.0 μ V
(Stereo)	37.5 dBf / 41.1 μ V
Signal-to-Noise at 65 dBf (Mono)	Better than 82 dB
(Stereo)	Better than 75 dB
Muting Threshold	30 dBf / 17.3 μ V
Frequency Response	20 - 15,000 Hz. ± 1 dB
THD at 1 kHz (Mono or Stereo)	Less than 0.07%
Capture Ratio	2.0 dB
Alternate Channel Selectivity	65 dB (± 400 kHz)
Stereo Separation at 1 kHz	Better than 50 dB
Spurious Response Rejection	Better than 90 dB
Image Rejection	Better than 75 dB
IF Rejection	Better than 80 dB
AM Suppression	Better than 60 dB
AM Tuner	
Frequency Range	520 kHz - 1,710 kHz in 10-kHz steps
Sensitivity	53 dB μ m
Signal-to-Noise Ratio	Better than 52 dB at 90 dB μ m
Total Harmonic Distortion	Less than 0.5% at 90 dB μ m
Selectivity	Better than 20 dB (± 10 kHz)
General	
Power Source	120 VAC, 50-60 Hz
Maximum Power Consumption	425 W max
Convenience Outlets	Switched: 2, Unswitched: 1
Dimensions (excluding feet)	430 (W) x 125 (H) x 370 (D) mm 16 15/16 (W) x 4 15/16 (H) x 14 9/16 (D) in.
Approximate Weight	15.0 kg; 33 lb

Specifications and appearance subject to change for further improvement without notice.
STASIS manufactured under license from Threshold Corporation
STASIS is a trademark of Threshold Corporation

NOTE: "A" Version Models

Nakamichi components are sold in more than 50 countries many of which have strict safety regulations to which Nakamichi products must comply. Models designated by an "A" have been produced for the United States and Canada and comply with Underwriters Laboratories (UL) and/or Canadian Standards Association (CSA) standards as well as with applicable state/provincial and federal safety requirements. Nakamichi has authorized its local distributors to warrant only products which have been produced for their respective areas.



TA-4A Rear Panel