KENWOOD

AUDIO COMPONENTS

Kenwood for the '90s...The Perfect Balance

KENWOOD
KENWOOD

THE PERFECT BALANCE

In the past few decades Kenwood has become known for creating high quality audio components that sound good, are full featured and long lasting. And most importantly Kenwood has been known for offering the best value in the audio industry.

We offer state-of-the-art technology, combined with the latest user convenience features. In the coming decade that long standing tradition will be even more evident.

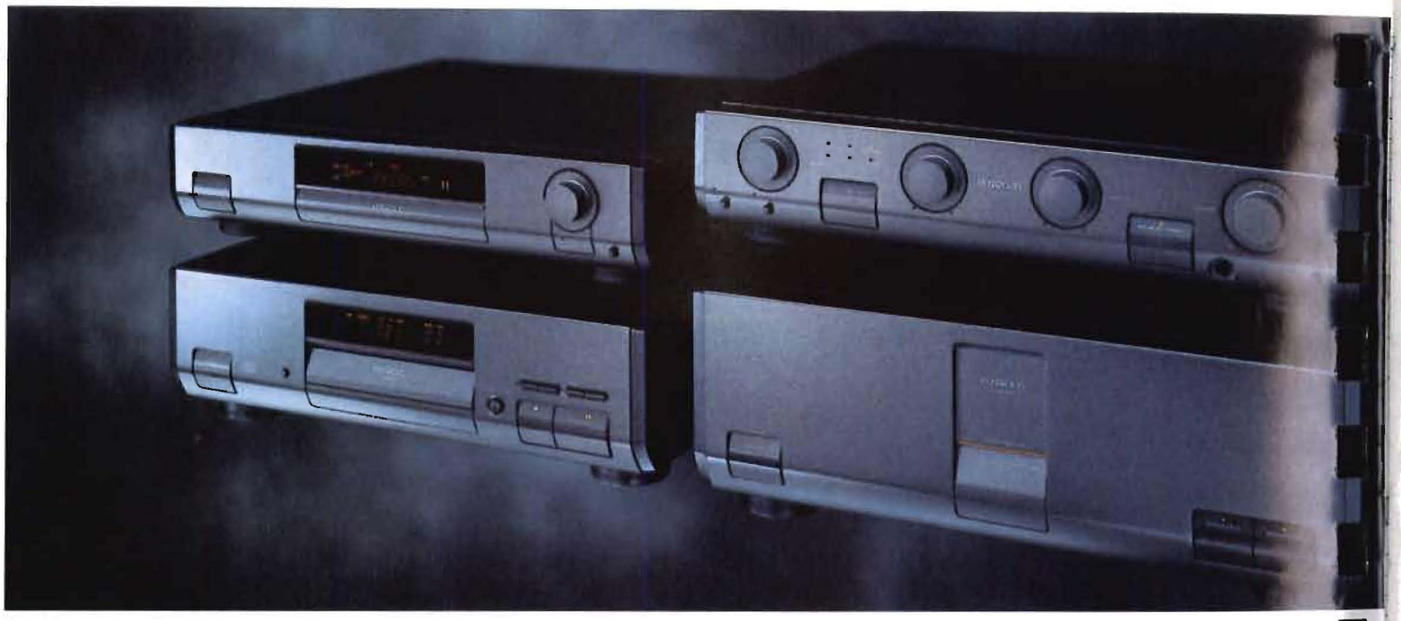
And we're not afraid to challenge some well-entrenched technological achievements where good sound is at stake.

When it comes to CD player fidelity, we go to the heart of the matter. Kenwood has developed an entire line of test equipment just to aid in the development of our CD technology. One of our discoveries was that while everyone was worried about the number of bits in a CD player, they were taking for granted the factor of "time". Our test equipment shows that the digital to audio conversion process alters the time of the digital signal. We have since developed D.P.A.C. (Digital Pulse Axis Control) to correct for this oversight that is inherent in all other CD players that don't address the time factor. And DPAC is only the beginning. Come along as we take you ever closer to hi-fi perfection.

L-series

High Fidelity Ideals Applied to Studio Technology

In the L-series, Kenwood has taken the best technology from professional studio equipment design and then improved it to achieve the loftiest audio goals. The result will satisfy the soul of the hi-fi purist.



L-1000D Compact Disc Player

The impeccable sound of the L-1000D was achieved by taking a radical approach to virtually every aspect of its design and construction. Signal paths and amplification stages are all fully balanced, yet unlike pro studio equipment they use no bandwidth limiting input/output transformers. Vibration damping/isolating construction and optical digital signal transmission preserve signal quality. Combining only the advantages of both ladder-type and noise shaping uni-bit type converters, the dual staggered-balanced integral DAC construction used in the L-1000D satisfies the demand for monotonicity, as well as both integral and differential linearity. The jitter preventing new DPAC system extends time-base correction beyond the DAC itself, into the analog stage. The resulting resolution of tiny changes in signal level appears as a captivating naturalness of tonal nuance and dynamics.

L-1000C Control Amplifier

Like all components in the L-series, the L-1000C features full balanced construction—the positive and negative halfwaves follow separate signal paths, complemented by an independent ground plane. The high internal noise rejection and distortion cancellation achieved by this construction is also preserved between components by equipping the L-1000C and other L-series units with Cannon connectors. Phono inputs are converted to balanced signals internally, again without transformer intervention. Both MC and MM are accepted.

The "shower light" display and remote controlled motorized volume knob hint at the perfectionist approach to system control realized by the L-1000C. The volume control is in fact a fully balanced amplification gain control circuit, designed to preserve signal-to-noise ratio even at high attenuation.

L-1000M Stereo Power Amplifier

While pro equipment uses balanced transmission between components, the Kenwood L-series adopts an innovative internally balanced configuration that prevents noise amplification by completely canceling common mode noise. Though other designs may claim such an achievement in theory, Kenwood's balanced transmission system and balanced amplification circuits achieve it in reality—because the success of Kenwood's implementation does not rely upon perfectly matching semiconductors, an impossibility in the real world of manufacturing. Most harmonic distortion is also eliminated by this advanced circuit approach.

The high linearity and efficiency of the L-1000M is supported by its massive power supply with a separate 270VA power transformer for each channel as well as four 47,000 microfarad capacitors. Cannon outputs and terminals for banana plug connection are provided.

L-1000T FM Quartz Synthesizer Tuner

Kenwood FM tuners have long held a special place in the hearts of audiophiles. The L-1000T is about to take its place as the latest in this legendary lineage.

"Effortlessly accurate" is one way to describe the L-1000's performance. Exclusive Active Reception Control Circuitry optimizes signal quality in the IF stage, to bring out the full benefits of the DCC (Distortion Correcting Circuit) which cancels IF filter distortion, the DLLD (Direct Linear Loop Detector) detector, and DPD (Direct Linear Decoder) with time-base correction of the carrier using quartz dual PLL MPX circuitry.

L-1000D Compact Disc Player

■ Complete Balanced Transmission System ■ Balanced Transformerless Linear Motor Mechanism ■ Super Optimum Servo Control ■ Dual Staggered-Balanced Integral 16-bit DAC Construction ■ Finite Impulse Response 4-Times Oversampling Digital Filter ■ DPAC (Digital Pulse Axis Control) & New DPAC ■ Optical Digital Signal Transfer to D/A Converters ■ Multi-Insulation and Diecast Pickup Base ■ Point-Contact Chassis ■ Ground Plane Double Circuit Boards ■ Optical & Coaxial Direct Digital Output ■ Discrete Power Supplies for Digital and Analog Circuitry ■ Fully Remote Controlled ■ System Remote with L-1000C

L-1000C Control Amplifier

■ Complete Balanced Transformerless Signal Transmission System from CD Player Input to Power Amp Output ■ Balanced Cannon Input/Output Connectors ■ Point-Contact Mounted Ground Plane Insulated Double Circuit Boards ■ Logical Flow Construction with Short Signal Paths ■ Highly Rigid Construction with 1.6mm Steel Base Plate ■ 6 Inputs: 1 Balanced, 2 Line, 2 Tape, 1 Phono ■ 4 Outputs: 1 Balanced, 1 RCA Type Preamp Out, 2 Tape ■ Source Direct Switch ■ MM/MC Selector ■ Motor Driven Balanced Volume Control ■ Fully System Remote Control ■ Illuminated Speaker Selector

L-1000M Stereo Power Amplifier

■ 130 Watts Per Channel (min. RMS, 8 ohms, 20Hz—20kHz, Less Than 0.006% THD) ■ Fully Balanced Parallel Push-Pull Amplifier ■ Complete Balanced Transformerless Transmission System ■ Balanced Voltage and Buffer Amplifiers ■ Balanced Cannon Input/Output ■ Highly Rigid Construction with 1.6mm Steel Base Plate ■ Illuminated Power Switch and Speaker Selector

L-1000T Quartz PLL Synthesizer Tuner

■ Active Reception Control Circuit ■ Quartz Dual PLL MPX Circuit for Time Axis Error Improvement ■ Direct Linear Reception Circuit ■ Distortion Correcting Circuit ■ Direct Linear Loop Detector ■ Direct Pure Decoder ■ Auto Quieting Control ■ ±25kHz Offset Tuning for elimination of interference from undesired stations ■ Full Remote Control ■ System Remote with L-1000C

Bringing You the Full Potential of Digital Sound— With Higher Linearity and Time-Base Stability

CD PLAYER TECHNOLOGY

These days, we hear a lot about the advanced digital circuitry different manufacturers use in their CD players. In particular, this talk often centers on the "number of bits" of the digital-to-analog converter, or DAC. Sixteen-bit, 18-bit, 20-bit, even 1-bit DACs are battling for technological superiority in the minds of todays consumers.

Since the DAC is critical to the overall performance of the CD player, we offer twin 20-bit D/A converters in our upper end players. But, the number of bits in a D/A converter is not the only thing that gives a CD player its distinctive sound. We've learned through extensive experimentation with our own line of digital test equipment, that concentrating on the digital-to-analog conversion phase alone will not result in truly accurate sound from a CD.

Increasing the number of DAC bits is intended to increase linearity and reduce quantization error. In other words, to improve the accuracy of the amplitude axis.

But sound is not static. It follows the time axis as well. In fact, this "second dimension", "time", is even more crucial to the sound quality of a CD player than the amplitude.

Jitter and Unnatural Sound

In a conventional CD player, the time axis can get "out of alignment" before the digital signal even reaches the DAC. This phenomenon is known as "jitter," and it arises due to instabilities in the timing signal pulses that keep the digital data moving at a steady pace. For example, though the digital signal might theoretically have a clock rate of 44.1 kHz, if the master clock on which this rate is based exhibits even the tiniest instability, there will be fluctuations in the flow of the digital bit stream.

Such instability or jitter undermines the very foundations of digital sound reproduction. It causes inaccuracies in the output of the digital-to-analog converter which, though difficult to measure with ordinary non-digital test equipment, are quite unpleasant to listen to. The sound can seem almost harsh. That harshness is digital jitter.

DPAC Kills Jitter in the Digital Domain.

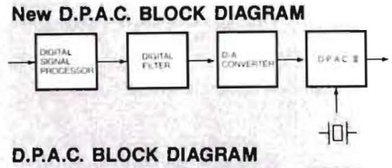
Extensive research has revealed that jitter is an inevitable consequence of the oversampling digital filtering process. Kenwood's DPAC—Digital Pulse Axis Control—eliminates jitter by re-aligning the digital signal with the master clock frequency. To do this it employs a second quartz oscillator to produce a super-accurate reference clock frequency. This is used to "re-convert" the output from the oversampling digital filter into a digital signal which is accurately time-aligned. The benefits of digital filtering remain and the digital bit stream fed into the DAC is completely jitter-free.

Kenwood New DPAC— (DPACII)

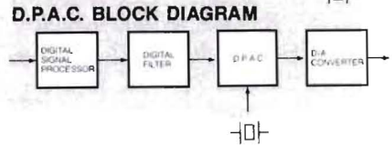
DPAC brings dramatic improvements in the time axis accuracy of the digital signal. But this is not the end of the story. In fact, the DAC itself by its very nature introduces a certain amount of jitter into the analog output signal as it operates.

This jitter is not as extreme as it would be without DPAC processing of the pre-conversion digital, but it is still there. Caused when the analog output signal induces fluctuations in the standard electrical potential of the DAC, this type of time axis misalignment shows up as a slight "fuzziness" in oscilloscope traces of the analog signal.

New D.P.A.C. BLOCK DIAGRAM

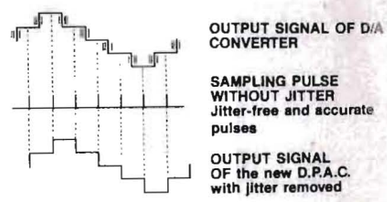


D.P.A.C. BLOCK DIAGRAM



Kenwood's new DPAC actually corrects this remaining jitter in the analog domain. It uses a sample-and-hold circuit to "realign" the analog signal containing jitter with a jitter-free master clock. This restores the time-axis integrity of the music signal, as can be seen in the oscilloscope trace of the new DPAC output waveform.

New D.P.A.C.



DPAC and new DPAC can be found only in Kenwood CD players. They're one of the major reasons why the sound of these units is so refreshingly natural, so clear and free from harshness.

Linear Full-Bit Twin D/A Conversion System

Some advertising might try to convince you otherwise, but extra bits in the digital filter or converter can do nothing to actually increase signal resolution. Instead, the technical reason for using these extra bits is improved linearity. The non-technical reason is that a converter designed to convert 18 or 20 bits will have an easier time converting just 16. And remember, all CD's are encoded with a 16 bit signal not 18 or 20. The goal is to do the original 16 as accurately as possible.

Neither oversampling nor the use of multiple DACs will increase the number of bits in the original. Anyone claiming otherwise is out of touch with reality. As a manufacturer of digital test instruments as well as audio equipment, we should know.

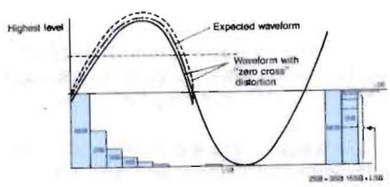
The Kenwood Full-Bit D/A conversion system is designed to improve linearity—to make sure that the analog output signal corresponds precisely to the original music signal. Non-linear DAC response shows up as quite audible distortion. And since it is totally unrelated to the

harmonic structure or any particular instrument's timbre it results in a decidedly unnatural sound.

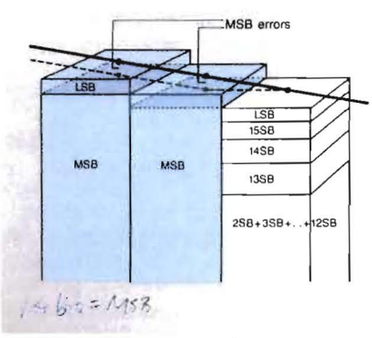
For maximum accuracy, all of the D/A converters employed by Kenwood are laser trimmed for precise control of chip surface area, which can affect the chip's performance. It is especially important when discrete D/A's are used for each channel, like we do in every CD player.

Kenwood's digital test equipment also revealed to us a phenomenon that is called "zero cross distortion". This is a type of switching distortion that is caused when the first data bit (MSB) is switched on and off. Since this bit determines if the signal will be above or below zero, any error is called zero cross distortion. The Linear Full-Bit D/A Conversion Circuit corrects for zero cross distortion and also for 2nd bit distortion, which can also adversely affect sound. Both of these corrections are made possible by a high speed IC developed by Kenwood's Digital Research and Development Team.

Linear Full-Bit DAC Principle I



Linear Full-Bit DAC Principle II



Zero cross (digital crossover) distortion, which most noticeably affects small signals, is a thing of the past. There is also far less distortion at high amplitude than with competing systems which temporarily boost and then attenuate portions of the converted signal. All of the low level and high level information makes it through the conversion process. So all of the music the digital data represents is clearly audible. Kenwood's Full-Bit system delivers a wider effective dynamic range and better linearity. So linear, in fact, that we were able to dispense with the usual deglitcher system.

Eighteen Plus Two Equals Twenty

If the 20-bit DACs used in many Kenwood CD players are so effective in improving linearity and minimizing quantization error, why didn't we just built a 40- or 80-bit DAC while we were at it? In reality, there are practical limits to the number of DAC bits. With today's monolithic IC technology 18 bits is the maximum on a single chip.

It is possible to build a 20-bit DAC using discrete devices. But such units are highly susceptible to changes in temperature and require complicated grounding arrangements. This makes them too unstable to be practical.

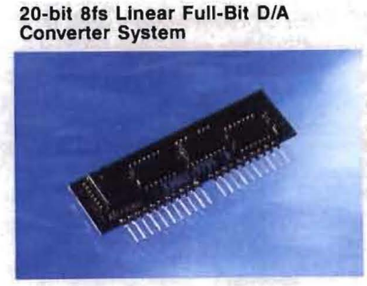
Most of the "20-bit DACs" now in use in commercially available CD players actually consist of a monolithic IC 18-bit DAC with two discrete devices added for a total of 20 bits. But such arrangements suffer from the same defects as DACs comprising all discrete devices (though to a lesser degree) and are therefore unable to fully realize their theoretical potential.

Kenwood's solution to the question of how to build a better 20-bit DAC is as elegant as it is effective. A monolithic IC 18-bit DAC is coupled with a Kenwood developed hybrid IC 2-bit DAC. The resulting 20-bit DAC is as immune to temperature induced fluctuations in performance as monolithic 18-bit units. Grounding is also much simpler than in designs incorporating discrete devices.

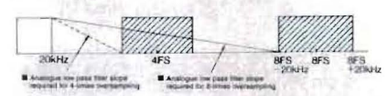
20-Bit 8-Times Oversampling Digital Filter

Oversampling, a type of digital filtering, is intended to minimize the need for analog filtering of the music signal. Without digital filtering, the output signal from the DAC must be subjected to an analog filter with a steep cutoff slope in order to remove quantization noise from the digital-to-analog conversion process. But "brick wall" filters of this type distort the phase of the signal, adversely affecting the fidelity of the sound you hear. This phase shifting is particularly noticeable in the higher frequencies, where it shows up as blurred stereo imaging.

20-bit 8fs Linear Full-Bit D/A Converter System



8-times Oversampling Filter



But by using a more efficient digital oversampling filter, it is possible to rely on an analog filter with a gentler cutoff slope and more musical output characteristics. Eight-times oversampling raises the original CD sampling frequency of 44.1 kHz to 352.8 kHz. The DAC's analog output signal needs only a minimum of analog filtering, so it retains its phase accuracy and stereo imaging precision.

New Multi-Insulation System

CD tracking accuracy will deteriorate if sonic energy from your speakers vibrate the CD player chassis. These sonic vibrations can adversely affect the performance of the CD player's internal and external mechanical systems which can cause degradation of the tracking and of the D/A conversion process. Plus the stability of the master clock's quartz oscillator could be affected which can lead to jitter which can seriously undermine the sound quality of the output signal.

The new multi-insulation system featured in

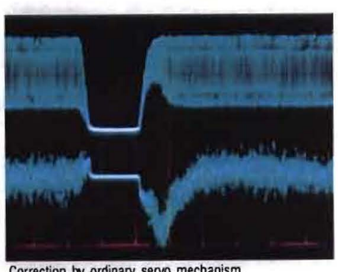
Entertainment Technology That Puts You in the Center of the Action

many of this year's Kenwood CD players uses a 5 point strategy to kill internally and externally generated vibrations. A 2-layer chassis, special insulators for the disc drive and printed circuit boards, hybrid insulators separating the pickup assembly from the power supply and feet incorporating elastic resin dampers provide comprehensive protection. So you can enjoy your CDs as loud as you like while maintaining optimum fidelity.

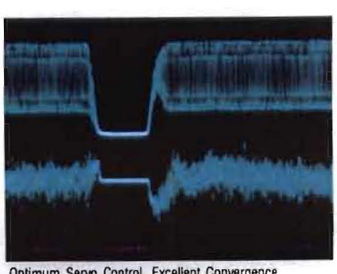
Optimum Servo Control Type III

Though vibrations can be minimized, the tracking servo still plays a crucial role in keeping the laser pickup over the proper disc track. As mentioned above, conventional servos can actually interfere with accurate signal retrieval if the corrective voltage they apply is too strong. To minimize this danger, the Kenwood Optimum Servo Control Type III system temporarily reduces servo gain if the pickup passes over a defective area. You get highly precise tracking without distortion of the digital signal.

Optimum Servo Control Type III



Correction by ordinary servo mechanism.
Top: RF signal from disc.
Bottom: Tracking error signal.
RF signal is partly missing due to flaw.



Optimum Servo Control. Excellent Convergence of tracking error signal ensures accurate transmission of RF signal.

A/V TECHNOLOGY

Full A/V Integration Means More Realism, More Excitement, More Entertainment.

Surround Sound

DOLBY SURROUND PRO • LOGIC

What makes watching a movie in a theater so exciting? Why is it so difficult to recreate that feeling of immediacy on the small screen or even a big screen at home? In reality, what you see is only a small part of the picture. What you hear is actually more important to the total effect.

When you are in a movie theater you are watching a large 40-60 foot screen, maybe larger. When the movie soundtracks are mixed, that screen size is factored into the mix. When things are happening on the left side of the theater the sound comes from the left, when things are happening on the right the sound comes from the right. And when events occur in the center of the screen the sound comes from the center. There is even a provision for extra speakers behind and to the sides of the audience for ambient sound—the three dimensional direction of sound. This is the effect you hear at all Dolby* Stereo movies.

There are several terms used to talk about the surround sound in a movie. The first was just mentioned...Dolby Stereo. This is the terminology used by the movie studios and Dolby Labs to tell whether or not the movie was encoded with a surround sound track from Dolby Labs. If the movie says Dolby Stereo you can be assured there is a surround soundtrack.

Some pre-recorded videotapes will say Dolby System on the linear tracks. This means the audio tracks of the tape were recorded using Dolby Noise Reduction and has nothing to do with the surround soundtrack. The movie may have surround sound and may not.

Dolby Surround is a term used in consumer electronics to designate equipment that has a decoder for Dolby Surround Sound built-in. The standard Dolby Surround Sound Decoder is used in conjunction with a pair of rear speakers to create ambience in the room. These decoders are "passive decoders". They add depth and enhance movie watching. This type of decoder is available in the KR-V6020, KR-V7020, KR-V8020 and SS-79. They use a simple decoding circuit and Dolby Noise Reduction to create a rear surround channel.

The last type of surround sound you will probably see is Dolby Pro-Logic. This expression is used to describe another type of consumer surround decoding process. This process takes Dolby Surround a few steps further. First, a steering logic (hence the name Pro-Logic) circuit is used to determine the position of each sound. That sound is then either sent to the rear speakers or to the front. The difference between Surround and Pro-Logic is that the passive Surround yields about 4dB difference between the front and rear channels. Pro-Logic has the capacity to yield about 25dB of channel separation. Next with Pro-Logic there are three different listening modes.

1.) Phantom. This is used with two main left and right speakers and rear surround speakers.

2.) Wide. The same configuration as with Phantom with the addition of a center channel speaker.

3.) Normal. This mode is used with two main speakers, rear speakers, a center speaker with good bass reproduction or a sub-woofer.

The Phantom mode is the easiest to use because it requires no more setup than the standard Dolby Surround. Wide is where the effect of Dolby Pro-Logic becomes impressive. The addition of a center speaker yields outstanding positioning of sound in your room, just like they do in a movie theater. The center speaker is for the action you see directly in the center of the screen, while the Left/Right and Rear speakers are for other sound effects, off camera sounds, orchestra and other sounds that will give the movie true realism. The advantage is outstanding sound, the disadvantage is the addition of extra speaker(s) and possibly an amplifier. You may be able to use the amplifier and speaker in your TV or Monitor. Ask to be sure. But remember you can always start out with Phantom Mode and build up to Wide in the near future.

Normal is the system suggested by Dolby Labs for optimum sound. It requires the most

*Dolby is a trademark of Dolby Laboratories Licensing Corporation

equipment but yields the best sound. The configuration is the same as for Wide with the addition of a sub-woofer or bass-speaker to the center channel or a higher quality center channel speaker that can accurately reproduce bass tones. The normal mode is where you not only hear the movie but also feel the action. The intensity and effect is dramatically increased and is well worth the extra work to setup. Once again remember that you can start out small and build up. You are not required to make the entire investment all at once. A Dolby Pro-Logic Decoder is available in the KR-V9020 and the KA-V6000. The KA-V6000 also has a separate pre-amp output for a future sub-woofer.

Input Balance Auto-Control

The enhanced realism of Dolby Pro-Logic ambience retrieval can only be optimized if the balance between the left and right channel is correct. If there is any variation, decoding errors can appear and the superior channel separation of Dolby Pro-Logic is not maximized.

In practice, this meant that owners of early Dolby Pro-Logic decoders had to laboriously calibrate the signal balance for each and every videotape or disc they played. Most didn't bother and therefore lost out on much of the effectiveness of the system.

Kenwood's input balance auto-control takes the drudgery out of obtaining optimum sound by eliminating sound-level errors automatically. Therefore, decoding always takes place under optimal conditions. Thanks to input balance auto-control, the center channel information comes out properly centered and rear channel separation is maximized.

S VHS

S-VHS Connection Facilities

The video signal in a conventional color TV has a very narrow bandwidth. As a result, the color (or chrominance) portion of the signal must overlap with the brightness (or luminance) portion. Unfortunately, color information sometimes gets mistaken for brightness and vice versa. This leads to visible problems on the TV screen. One with which everyone is familiar is the false "cross color" (or moire) patterns that appear in the TV picture when someone wears clothing with a herringbone or narrow pinstripe pattern.

The only way to completely eliminate this type of interference would be to completely separate the chrominance and luminance bands. This is exactly what the system called Super VHS or "S-VHS" does. S-VHS also shifts the luminance band from 4.4 MHz up to 7.0 MHz for dramatically better resolution.

Kenwood audio-video amplifiers come standard with S-VHS connectors, so you can take full advantage of this new quality standard in video enjoyment. The KA-V6000, for example, features S-VHS input and output connectors, for connecting an S-VHS VCR or camcorder and monitor. So an S-VHS video source can become part of your total entertainment system, contributing detailed picture quality and dynamic sound.

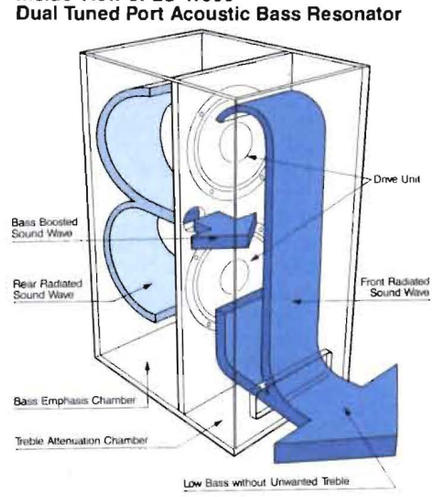
Balanced Deep Bass Power

In a conventional speaker system, the woofer is mounted together with the midrange and tweeter in a single cabinet. Unfortunately, this approach is far from ideal. For starters, bass energy from the low-range unit can muddy the sound in the midrange and treble frequencies. Also, mounting all the drivers in one enclosure increases the size of the cabinet. This not only makes it difficult to fit into a typical room. It also invites edge diffraction and boundary reflection effects which prevent accurate stereo imaging and destroy soundstage realism.

The Kenwood solution marks a significant break from traditional loudspeaker design. We call it the Super Woofer System. It gives you better sound quality in a configuration that fits more naturally into your room interior. And it prevents the woofer from interfering with the optimal performance of the midrange and tweeter by removing it to a completely separate enclosure: the Super Woofer. Two compact satellite speakers complete the arrangement.

The Super Woofer, which can be placed away out of sight, employs an innovative design to produce powerful, tight low-bass response. Dual low-range drivers radiate into a bass emphasis chamber which is specially dimensioned to favor the desired low frequency range. The emphasized sound then travels to a neighboring treble attenuation chamber via a tuned port which also receives sound waves radiated from the rear of the woofer cones. The purpose of this second chamber is to eliminate unwanted higher frequency signal components that are better handled by specialized drivers in the companion satellite speaker systems.

Inside View of LS-W900
Dual Tuned Port Acoustic Bass Resonator



The treble attenuation enclosure can be thought of as an acoustic filter. It allows the low bass frequencies to remain, while it attenuates elements that could mask and muddy the output of the midrange and treble drivers. In this way low range distortion is minimized. But more importantly, narrowing the Super Woofer output to the optimal frequency band enhances the performance of the system as a whole.

To deal with the immense sound pressure levels which can build up inside the Super Woofer cabinet, the driver units employ special diaphragm materials and magnetic circuit construction. Thick non-pressed cones for the woofer diaphragms combine lightness and high rigidity with enough internal loss to suppress radiation of spurious harmonics. In addition, linear response extends throughout the very low frequency range thanks to precision engineered magnetic circuit and suspension construction.

RECEIVERS

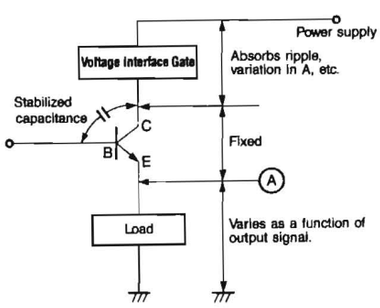
Kenwood receivers offer the most useful features and the highest performance of any brand of receivers on the market. Someone may have a few extra bells and whistles but they can't match Kenwood's outstanding sound performance and those "performance oriented" receivers with little or no user features can't top our overall value.

Voltage Interface Gate Amplifier Circuitry

Kenwood has developed amplifier circuitry that not only stabilizes the amplifier and allows it to drive lower impedance speakers, but also just makes it sound better.

The Voltage Interface Gate (VIG) works on the voltage amplifier in the unit (there are two, voltage and amperage) to be sure that the voltage stage is always stable. During times of low impedance drive or as the amplifier is being asked to put out it's maximum amount of wattage the power supply can generate non perfect current. The VIG circuit compensates and only allows pure, perfect, clean current through to the voltage amplifier. This delivers additional stability and better sound since all of the impurities being generated by the power supply are suppressed. This can be heard as you crank a standard receiver or amplifier up near it's maximum output potential. The midrange and high frequencies tend to sound slightly harsh. This is the voltage section not getting pure signal from the power supply. VIG eliminates this disturbing sound and delivers only pure clean, stable music performance.

VIG Circuit Diagram



Auto Function

One of the things that people are always telling us is that our remote controls are so complicated and have too many buttons. We of course remind them that the units are very full featured and all of those keys are needed to control all of the functions. But at the same time we have developed a system which makes operating extremely easy. The system is called Auto Function. It is completely automatic. When using Kenwood system remote compatible components all the confusing component switching is done for you, automatically.

For example, say you are listening to a tape and you want to switch to a CD. On a conventional system you would press STOP on the cassette deck, press CD on the receiver or amplifier and then PLAY on the CD player. With Auto Function all you do is press CD on the remote and the system will take care of the reset. The tape deck will stop and the CD player will begin to play. Nothing could be easier. If you push PLAY on the remote for the CD player the same thing will happen.

This means that the only buttons you really need on the remote are the few Component ID buttons. If you happen to lose your remote, Auto Function will also work on the front panel of the components.

160-Function Programmable Remote Control

Kenwood Audio/Video Receivers are designed to coordinate all your audio and video components into a unified system. To make that goal a reality the KR-V9020 and KR-V8020 come with a learning remote control packed right in the box (with batteries) This remarkable remote unit puts you in complete command of the receivers and of just about any other component you're likely to connect to it.

Naturally, its programmed to control the KR-V9020 or KR-V8020 and a host of other popular Kenwood components. But this amazing remote doesn't stop there. Its operation can be customized to cover virtually any other remote controllable component—from any manufacturer—that you may own now or purchase in the future.

All you do is put the remote head to head with another remote. It can actually "learn" the infrared light codes and then reproduce them later. Once you've transferred their major functions to the remote you can put the old units away in a drawer. Say goodbye to coffee table clutter.

This universal remote can learn up to 160 remote functions and comes pre-programmed with over 80 functions. The learning remote's three modes (Audio/Video/Aux) enable each button to be utilized a minimum of three times. This three level operation is definitely better than a remote with around 240 buttons and is easy since many pieces of equipment use the same basic commands like PLAY, PAUSE, FF, RWD, 1,2,3,4,5 and a host of others. On the top of the remote are the keys for a cassette deck. The A/B switch allows the operation of the two wells of a double cassette deck in the AUDIO Mode. In the VIDEO mode the A/B switch will control two different VCR's and in AUX maybe a DAT Recorder and a third VCR. That's a total of 6 cassette deck type functions from one set of keys. Ultimate flexibility is the only way to describe this remote.

Three modes (Audio/Video/Aux) allow complete control of virtually any audio, video, or other electronic device that accepts wireless infrared commands. At the Aux position, all keys on the RC-120 can learn commands directly from other remote control units. Just place both remote control units head to head and press the keys on both units. It's that simple.

Dolby*, Theater, and Hall Surround Modes

DOLBY SURROUND PRO • LOGIC

Many Kenwood Audio Video Receivers are equipped with Dolby Surround Sound Decoders and one with a Dolby Pro-Logic Decoder. A detailed explanation of the differences are in the beginning of this brochure.

KR-V9020 Inner Control Panel

*Trademark of Dolby Laboratories Licesing Corp

In addition to the Dolby Decoders are some useful surround effect generators that will enhance virtually anything you listen to. For example, THEATER is used when the movie or TV show you are watching is not encoded with a Dolby Stereo surround track. Theater surround yields an excellent three dimensional effect from any stereo source, like rented video tapes, Stereo TV or even some music.

The HALL mode is made to recreate the feeling and acoustics of being in a concert hall. This is perfect for listening to most music, live concerts and some sports events. Try them for yourself and you'll see what a difference they can make.

The Auto Input Balance included on the KR-V9020 does away with the need to calibrate the signal balance each time you load a new tape. This intelligent circuit sets the correct signal levels automatically to ensure optimal Dolby Pro-Logic performance each and every time.

There's also a built-in test-tone generator to make adjusting the volume balance of the surround and center channels easier.

To tailor the effect to the dimensions of the listening room (both actual and perceived) you can set the digital delay time in 1.5 millisecond steps over a range of 15 ms to 30 ms.

S-VHS Input/Output Connectors for Maximum Signal Purity

S-VHS is an advanced videotaping system that separates the luminance and chrominance components which overlap in a conventional video signal. It dramatically reduces picture distortion such as "cross-color" and "dot-crawl" effects and raises horizontal resolution to over 400 lines. The KR-V9020 features special input and output jacks (S-connectors) for this special signal format and discrete signal paths for each within the receiver. This assures that S-VHS or other Y/C separate format components (such as ED-beta) used with this connector retain their maximum potential.

CD Direct Path Connection

Another feature designed to ensure the utmost in signal purity is the CD direct inputs. Excessive switches or attenuators in the signal path can introduce noise or distortion into the music signal. CD direct lets you completely bypass the tone control and other circuits which are not usually needed for compact disc reproduction. This assures that the music signal from the CD player stays as pure and unblemished as possible.

There's ample provision for all of your other components—both present and future. A wealth of additional inputs and dubbing facilities handle virtually any conceivable configuration of digital audio, video and conventional audio equipment.

System Preset Memory Banks

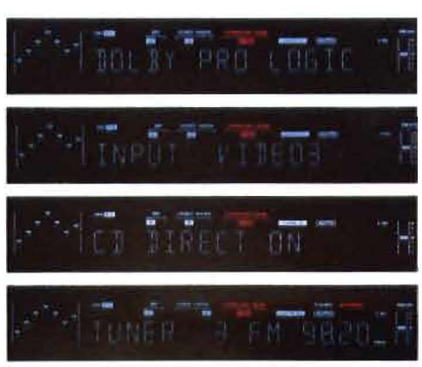
Audio-video system operation can get pretty complicated as the number of entertainment sources and ways of using them proliferate. System Preset provides a practical solution. Its two memory banks (KR-V9020 and KR-V8020) are each capable of storing a whole sequence of settings for instant recall.

Let's say you want to turn on the surround sound effect, add a particular equalization curve and adjust the front and rear volume balance when you watch videodiscs. Once you've stored the necessary setting in one of the memory banks, the touch of a single button recalls all this information instantly.

Two system preset memory keys let you instantly switch between two distinct entertainment environments (including the current non-memorized settings). System Preset covers the following settings: Rear Volume, Input Source, Surround On/Off, Tuner Preset Channel, EQ Preset, EQ On/Off, EQ REC, and Balance. It's a convenient way to control your audio/video entertainment system.

Multi-Mode Dot Matrix Display and On-Screen Display

The dot matrix displays featured on many Kenwood receivers uses patterns of tiny dots to form letters and numbers. This results in display indications which are more detailed and easier to read than with conventional displays using only straight segments. The multi-mode dot matrix display shows the selected functions and also includes equalizer settings and surround mode rear/center level.



If the KR-V9020 is connected to a TV monitor, even more detailed system information is displayed on the TV screen. The useful data shown includes the currently selected listening source, the viewing source, as well as functions such as CD direct, audio injection and surround mode settings. After you operate a control on the remote or front panel, the relevant information appears on the TV screen for several seconds.

Familiar Rotary Knob Volume Control

All Kenwood receivers give you the convenience of the familiar rotary volume knob (not annoying up/down push-buttons). The remote controlled receivers (KR-A5020, KR-V6020, KR-V7020, KR-V8020, KR-V9020) employ motorized volume knobs. When you use the remote to adjust the volume, the knob on the front panel rotates while an indicator flashes showing you it is operating. You can also turn the knob by hand without damaging the motorized mechanism.

Video "Through" Dubbing

This is a convenient feature for editing videos or making video disc-to-tape transfers. Video "through" dubbing allows you to dub from one video source to another while watching or listening to any other source. Now you can make copies of all those home movies for the grandparents without having to actually sit through them.

7-Band Graphic Equalizer with 10-EQ Memory Presets

We all have our own personal preferences about how we want music to sound. No particular response curve will satisfy every listener. The listening room and the program material also make a difference. Boosting the low and high frequencies might be right for rock, but classical music might require careful midrange adjustment.

Using the built-in 7-band graphic equalizer, you are completely free to tailor the frequency spectrum to create the tonal balance you like best. And since different types of music demand slightly different treatment, there's a 10-preset memory capability to let you store and recall your equalization curves at the touch of a button. 5 of these presets are configured in the factory and 5 are available for your use.

SNPS—Station Name Preset System

It's much more natural to refer to FM and AM stations by their call letters than by their broadcast frequencies. The Station Name Preset System (SNPS) makes it easier to keep

track of what you're listening to by allowing you to store those familiar station names along with the frequency. Then, whenever you tune in a broadcast the call letters appear right on the display. SNPS can store up to 20 AM or FM stations with their call signs for instant, one-touch recall.

SNDC—Station Name Direct Call (KR-V7020)

SNDC takes SNPS one step further. When you wish to recall your favorite station you can simply key in the call letters on the remote control and the station is instantly on. No more trying to remember which preset you put your favorite on, just dial in the station call letters or any other 4-letter word (be careful) you wish to identify with the station and away you go.

Spectrum Analyzer Display (KR-V9020)

The display of the 7-band equalizer also doubles as a spectrum analyzer. Press a switch and it shows you the actual music energy within each frequency band. Used in conjunction with the equalizer, this analyzer gives you the information you need to equalize with greater precision and dependability.

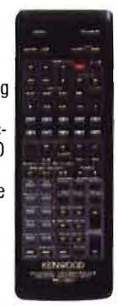
10-Key Direct Access Tuning

Weak or far away stations may be completely skipped over by automatic tuning. But if you really want a particular broadcast you may not care about a bit of noise or static. Direct access tuning lets you zero in on any given station with pinpoint accuracy. All you need to do is use the 10-key pad to punch in the actual broadcast frequency.

KR-V9020 Audio-Video Receiver

DOLBY SURROUND PRO·LOGIC S VHS

PROGRAMMABLE FULL REMOTE CONTROL · CD DIRECT · STATION NAME PRESET SYSTEM · 10-KEY ACCESS TUNER · BUILT-IN GRAPHIC EQUALIZER · AUTO FUNCTION



Audio and Basic Functions ■ Front: 130 Watts Per Channel (min. RMS, 8 ohms, 20Hz-20kHz, 0.008% THD) ■ Rear: 20 Watts Per Channel (8 ohms at 1 kHz) ■ Learning Remote Control ■ Voltage Interface Gate Amplifier Stabilizing Circuit ■ Two System Preset Memory Banks ■ 7-Band Electronic Graphic Equalizer with 10 Presets ■ 7-Band Spectrum Analyzer Display ■ Multi-Mode Dot Matrix Display ■ Motor Driven Volume Control ■ CD Direct Input ■ Speaker A/B Parallel Connection **Surround Sound** ■ Dolby Pro-Logic Surround Sound Decoder ■ Normal, Wide and Phantom Surround Modes ■ Center and Rear Channel Pre-Amp Outputs ■ Test Tone Generator ■ Auto Input Balance ■ Theater/Hall Surround ■ Adjustable Digital Delay **Video** ■ S-VHS (Y/C Separate) Input/Output ■ On-Screen Display Capability ■ Audio Injection ■ Video Through Dubbing **Tuner** ■ 20 Random Tuner Presets ■ 10-Key Direct Access Tuning ■ Station Name Preset System (SNPS) for FM/AM ■ Preset Scan **Additional System Features** ■ Auto Function

KR-V8020 Audio-Video Receiver

DOLBY SURROUND

PROGRAMMABLE FULL REMOTE CONTROL · CD DIRECT · STATION NAME PRESET SYSTEM · 10-KEY ACCESS TUNER · BUILT-IN GRAPHIC EQUALIZER · AUTO FUNCTION

Audio and Basic Functions ■ Front: 100 Watts Per Channel (min. RMS, 8 ohms, 20Hz-20kHz, 0.008% THD) ■ Rear: 20 Watts Per Channel (8 ohms at 1 kHz) ■ Learning Remote Control ■ Voltage Interface Gate Amplifier Stabilizing Circuit ■ Two System Preset Memory Banks ■ 7-Band Electronic Graphic Equalizer with 10 Presets ■ Multi-Mode Dot Matrix Display ■ Motor Driven Volume Control ■ CD Direct Input ■ Speaker A/B Parallel Connection **Surround Sound** ■ Dolby Surround Sound Decoder ■ Theater/Hall Surround ■ Rear Channel Pre-Amp Output ■ Adjustable Digital Delay **Video** ■ Audio Injection ■ Video Through Dubbing **Tuner** ■ 20 Random Tuner Presets ■ 10-Key Direct Access Tuning ■ Station Name Preset System (SNPS) for FM/AM ■ Preset Scan **Additional System Features** ■ Auto Function

KR-V7020 Audio-Video Receiver

DOLBY SURROUND

Audio and Basic Functions ■ Front: 100 Watts Per Channel (min. RMS, 8 ohms, 20Hz-20kHz, 0.06% THD) ■ Rear: 15 Watts Per Channel (8 ohms at 1 kHz) ■ Full Function Wireless Remote Control ■ Voltage Interface Gate Amplifier Stabilizing Circuit ■ Multi-Mode Dot Matrix Display ■ Motor Driven Volume Control ■ CD Direct Input ■ Variable Loudness Control ■ Speaker A/B Parallel Connection **Surround Sound** ■ Dolby Surround Sound Decoder ■ Theater/Hall Surround ■ Adjustable Digital Delay **Video** ■ Video Dubbing ■ Audio Injection ■ 2-Video In/Out **Tuner** ■ 20 FM and 10 AM Tuner Presets ■ 10-Key Direct Access Tuning ■ Station Name Preset System (SNPS) for FM/AM ■ Station Name Direct Call (SNDC) ■ Preset Scan **Additional System Features** ■ Auto Function

KR-V6020 Audio-Video Receiver

DOLBY SURROUND

■ Front: 70 Watts Per Channel (min. RMS, 8 ohms, 20Hz-20kHz, 0.08% THD) ■ Rear: 5 Watts Per Channel (8 ohms at 1 kHz) ■ Dolby Surround Sound Decoder ■ Theater Surround ■ Audio Injection ■ 2-Video Inputs ■ 20 FM and 10 AM Tuner Presets ■ 10-Key Direct Access Tuning ■ Preset Scan ■ Full Function Wireless Remote Control ■ Motor Driven Volume Control ■ Fluorescent Dot Matrix Display ■ CD Direct Input ■ Variable Loudness Control ■ Speaker A/B Selector ■ Auto Function

KR-A5020 Stereo Receiver

■ 60 Watts Per Channel (min. RMS, 8 ohms, 20Hz-20kHz, 0.09% THD) ■ Motor Driven Volume Control ■ Full Function Wireless Remote Control ■ 20 FM and 10 AM Tuner Presets ■ 10-Key Direct Access Tuning ■ Preset Scan ■ Fluorescent Dot Matrix Display ■ CD Direct Input ■ Two Video Sound Inputs ■ Speaker A/B Selector ■ Auto Function

KR-A4020 Stereo Receiver

■ 40 Watts Per Channel (min. RMS, 8 ohms, 40Hz-20kHz, 0.09% THD) ■ Total of Five Inputs (Including Tuner) ■ Two Pairs of Speaker Terminals ■ 20-FM/10-AM Station Random Preset Memory ■ 10-Key Direct Frequency Input ■ Fluorescent Display ■ Loudness Control ■ Preset Scan

AUDIO/VIDEO AMPLIFIERS

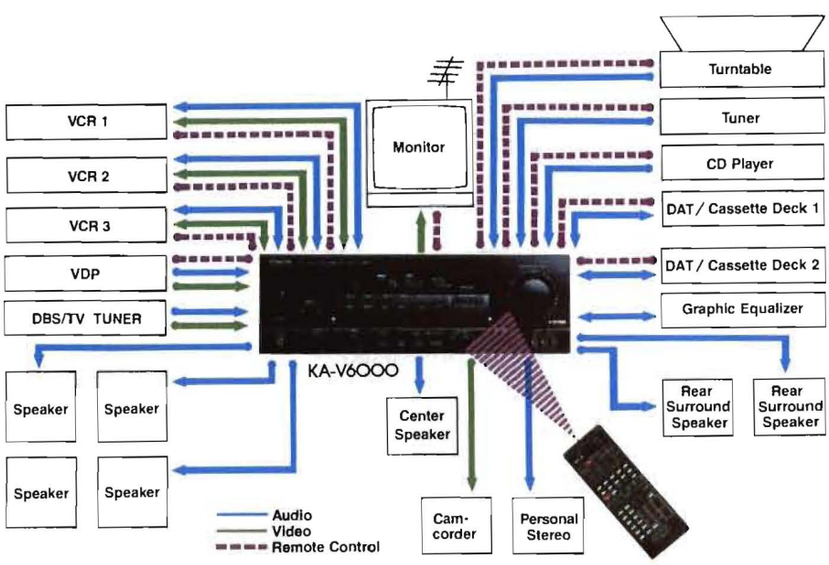
Bringing together all of the different home entertainment options available today is very important. Being ready for what happens tomorrow and beyond is where Kenwood A/V Amplifiers standout.

Connection and Switching for a Multitude of Components.

The KA-V6000 has connections for 12 different components with switching and dubbing available between most. This is a possible system configuration for the KA-V6000. AUDIO-Turntable, CD Player, Tuner, Cassette Deck, Digital Audio Tape Deck with one input left for future usage. VIDEO-S-VHS VCR, VHS VCR, Beta VCR, Laser Video Disc, Direct Broadcast Satellite System and the front input ready for your camcorder. This is only one possibility. That front audio/video input could also be used to play a portable CD player or extra cassette deck used for dubbing. Maybe you are not into video but have a multitude of audio sources. Just think of being able to connect 5 tape decks to one unit. Plus 7 other audio sources and have control of the dubbing between the components.

The potential of the KA-V6000 will probably not be realized for years, but won't it be nice to not need to keep buying new equipment every time a new technology comes along.

KA-V6000 System Connections



S-VHS Capability

S-VHS is the Super VHS video system that uses a new signal format to achieve higher resolution and improved color. To make this possible, S-VHS separates the color portion of the video signal from the black & white portion which carries the picture detail. By preventing interference between the two parts of the signal, S-VHS avoids the kinds of distortion that you see in ordinary video playback. The difference is particularly apparent when you play a video recorded by an S-VHS camcorder. Since the KA-V6000 is equipped with S-VHS input and output connectors, it greatly simplifies connection of an S-VHS video source to a TV monitor that accepts S-VHS signals. This allows you to select video picture and sound simultaneously for extra convenience.

Dolby Pro-Logic, Theater and Hall Surround Modes

DOLBY SURROUND PRO • LOGIC

To give you the same excitement in your home you'll find in a movie theater, the KA-V6000 features a Dolby Pro-Logic decoder. Detailed information on Dolby Pro-Logic is available near the front of this brochure. Suffice it to say the KA-V6000 has the most advanced Pro-Logic Decoder available from Kenwood and must be heard to be believed.

Subwoofer and Center Outputs

A separate subwoofer preout gives you the option of hooking up a separate amplifier and low-range speaker unit to reproduce the bass signals that are encoded into the center channel of Dolby* Stereo movies. Its 12 dB per octave roll off above 110 Hz permits direct connection, eliminating the need for an external dividing network.

Auto Input Balance

To achieve the best possible response from the Dolby Pro-Logic decoder a new Auto Input Balance circuit is utilized to match the levels in the left and right channels. If the balance between the two is off the Pro-Logic decoder might send incorrect information to the center channel, degrading the overall effect of the surround effect.

Surround Memory Settings

Not all movies are mixed the same. So not all surround tracks are encoded at the same levels. At times you may want more center channel, sometimes more rear. Instead of having to set these every time the KA-V6000 has the capacity to remember 5 of your favorite settings. Once you tell the unit to remember your settings you can then title the setting for easy reference. Maybe Beetlejuice has a different mix from Batman, and Back to the Future is completely different from those two. Simply title the surround settings the name of the movie you used to set them. An on-screen menu shows you the titles and allows to pick which one you want recalled.

*For Dolby Pro-Logic setups, a discrete center preout is provided.

Component Name Settings

As mentioned, the KA-V6000 can have 12 different components connected to it. With all those units connected you or your family might actually forget what component is connected to what input. The KA-V6000 will allow you to change any of its preset component references (VIDEO 1, VIDEO 2, TAPE 1, PHONO etc.) to whatever you want. Maybe VIDEO 1 is the KV-D957S from Kenwood. Then change VIDEO 1 to say KV-D957S or to say KENWOOD. VIDEO 2 might be an RCA® VCR. Change VIDEO 2 to say that. Then when you are checking the dubbing information you can set the KA-V6000 to dub from your RCA to your KENWOOD instead of just VIDEO 2 to VIDEO 1. It makes things just a little bit easier.

Learning Remote Control

In addition to its many other impressive features, the KA-V6000 also comes with a quite remarkable remote control unit. This learning remote is preprogrammed to control many popular Kenwood audio and video components. But, it also can "learn" commands from other remotes—even if they come from manufacturers other than Kenwood. A total learning capacity of 160 programmable functions gives you coverage of virtually any device (audio, video or otherwise) that responds to infrared remote control.

Digital Delay

The delay time from the front to the rear channel is fully digital for the cleanest and most accurate sound possible. The standard BBD delay circuit doesn't fit the bill when talking about an amplifier of this quality. The delay is adjustable in 1.5 ms increments and is adjustable via remote control from your chair.

Adapter Loop

If you have the need for extra signal processing such as an equalizer, the KA-V6000 has an Adapter loop built in and available on the back panel. This allows for the cleanest introduction of an external processor.

Three modes (Audio/Video/Aux) allow complete control of virtually any audio, video, or other electronic device that accepts wireless infrared commands. At the Aux position, all keys on the RC-V6000L can learn commands directly from other remote control units. Just place both remote control units head to head and press the keys on both units. It's that simple.

KA-V6000 Audio-Video Control Center

DOLBY SURROUND PRO•LOGIC

S VHS

PROGRAMMABLE FULL REMOTE CONTROL

■ Front: 70 Watts Per Channel at Stereo Mode, 70 Watts Per Channel at Surround Mode (min. RMS, 8 ohms, 20Hz-20kHz, 0.08% THD) ■ Center: 70 Watts Per Channel (min. RMS, 8 ohms, 20Hz-20kHz, 0.08% THD) ■ Rear: 18 Watts Per Channel (8 ohms at 1 kHz) ■ Learning Remote Control ■ Six-Source Audio and Six-Source Video Facilities ■ Three S-VHS (Y/C Separate) Inputs/Outputs ■ Full Video Dubbing Capability ■ Video Through Dubbing ■ Dolby Pro-Logic Surround Sound Decoder ■ Normal, Wide, Phantom Surround Modes ■ Test-Tone Generator ■ Center Channel, Subwoofer, Rear and Front Preouts ■ Theater Surround Sound ■ Stadium Surround Sound ■ Digital Delay ■ On-Screen Display ■ Motor Driven Volume Control ■ Source Direct Switch ■ Five 12-Digit Title Memory Banks for Surround Information

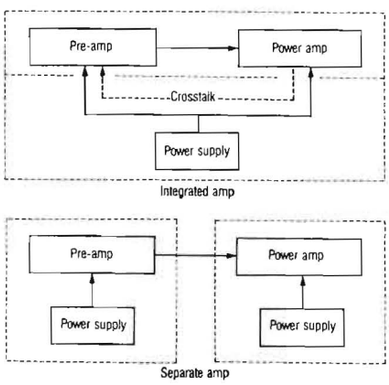
AMPLIFIERS

Amplifier designs that have withstood the test of time. These units may not be brand new but they are still some the top performing components on the market. Compare them head to head with those so called "performance oriented" components and discover what the real meaning of value is.

Separate Power & Control Amplifiers

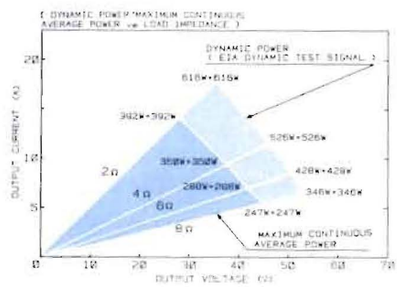
These Kenwood amplifiers are for the uncompromising listener, who desires abundant power and exceptional performance. Maximum isolation of switching components from large current interference is achieved through the use of separate control amp and power amp components. For the ultimate in power, control and value, these components have no peers.

Separated Amp. vs Integrated Amp



Dynamic Linear Drive

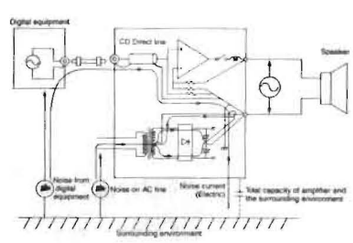
High power amplifiers are great to deliver dynamic sound but in general don't accurately deliver all the nuances of music. On the other hand a lower power amp designed to give life to all of those nuances can't deliver all the impact of a high power amp. It seems that the perfect solution would be to combine the two. Well, engineers have tried to do this for years to no avail. There was always the problem of a switching distortion between the two amplifiers. Kenwood has overcome that problem with the Dynamic Linear Drive Circuit. This amplifier circuit effectively combines a high power, high current amp and a low power ultra clean pure amp into a single drive circuit without the problems of switching distortion. Listen to the 220 watt per channel BASIC-M2A versus another 220 watt amplifier. Both will deliver that 220 watts of rated power, but listen to how they sound at 3/4 of one watt which is how much power is needed to provide good background sound to your home. Listen to which one delivers clean high frequency response, less background noise and overall better tonal quality. Dynamic Linear Drive allows this amp to perform at optimum at whatever volume level you select. No other amp can make that claim.



Sigma Drive

Many amplifiers today employ negative feedback to reduce distortion. But too much of a good thing can do more harm than good. The danger is that the clean specs may hide decidedly unnatural sound. Kenwood's patented Sigma Drive circuit takes negative feedback where it's never been before, to the speakers. It extends the loop to the speakers providing more efficient cancellation of distortion components and at the same time improves amplifier drive into low impedance reactive speaker loads. The resulting high damping factor shows that the circuitry is in control of the speakers for maximum sound efficiency and clarity. You won't believe how good your speakers can sound until you hook them to an amplifier with Sigma Drive.

Sigma Drive Circuit



MM/MC Cartridge Selector

Today's proliferation of digital sources will never erase the great musical heritage preserved in the analog LP format. To allow you to hear the treasures of your record collection in all their glory, the BASIC C2 is equipped with phono equalizer preamp circuits to handle signals from either MM or MC cartridges. Though generally more costly, the lower inertia of the moving coil in an MC design can help to enhance the definition of the reproduced sonic image.

Low Noise Volume and Tone Controls

The BASIC-C2 utilizes the finest in tone controls and volume controls available. All units are sealed against dirt entering and causing a scratchy sound over the years.

Super Coupled Volume Control

The volume control on the BASIC-C2 acts not only as a volume attenuation of the signals but also affects the signal path itself so there is no change in phase or impedance during volume adjustment. This is used to not introduce any noise during times of low level listening.

Four Way Filters

The three filter buttons on the BASIC-C2 actually acts as four separate filters. The first is a subsonic filter at 18 Hz with a 12 dB per octave rolloff. The Second is a low filter at 40 Hz and third a high filter at 8 kHz. By depressing the first and second buttons the fourth filter is engaged, a low filter at 58 Hz.

Headphone Connection

The BASIC-C2 also allows connection of a pair of monitor headphones. The distinction of the BASIC-C2 is that the headphone output actually utilizes a separate amplifier for maximum isolation from the signal sources. Thus the introduction of a headphone into the system will not change the drive or impedance of the unit.

BASIC-C2 Control Amplifier

■ MM/MC Cartridge and Impedance Selectors ■ Advanced Single NFB Loop Phono Equalizer Amplifier ■ 2-Way Tape Dubbing with Monitoring ■ Source (rec-out) Tape Selector ■ Two AUX/VCR Inputs ■ Kenwood NF-CR Tone Controls with Frequency Turnover Selector ■ Super-Coupled Volume Control for Low Noise at Low Volume ■ 4-Way Filter System ■ Loudness Switch ■ Mono/Stereo Switch ■ Headphone Monitor with Level Control ■ Output On/Off Switch ■ Power & Output LED Indicators

BASIC-M2A Stereo Power Amplifier

■ 220 Watts Per Channel (min. RMS, 8 ohms, 20Hz-20kHz, 0.004% THD) ■ Super Dynamic Linear Drive Dual-Output Power Amplifier Circuitry ■ Outstanding Low-Impedance Drive Capability ■ Dynamic Power Output (EIA) 616 W/ch into 2 ohms ■ Wide-Range Fluorescent Peak Power Meters with Selectable Peak-Hold ■ Independent L/R Level Controls ■ Sigma Drive Type B Speaker Connection ■ Damping Factor 1000 at 50 Hz ■ Full Circuit Protection with Thermostat-Controlled Fan Cooling ■ Two Speaker System Operation ■ Gold Plated Input Terminals ■ Headphone Jack ■ Power Indicator & Muting Relay

BASIC-M1D Stereo Power Amplifier

■ 125 Watts Per Channel (min. RMS, 8 ohms, 20Hz-20kHz, 0.008% THD) ■ V.I.G. (Voltage Interface Gate) ■ DLD (Dynamic Linear Drive) ■ Outstanding Low-Impedance Drive Capability ■ Dynamic Power Output (EIA) 310 W/ch into 2 ohms ■ Wide-Range Fluorescent Peak Power Meters with Selectable Range ■ Independent L/R Level Controls ■ Sigma Drive Type B Speaker Connection ■ Damping Factor 1000 at 50 Hz ■ Full Circuit Protection ■ Two Speaker System Operation ■ Power Indicator & Muting Relay

COMPACT DISC PLAYERS

For the ultimate in digital high fidelity, there's no substitute for a Kenwood CD player.

DPAC and New DPAC

One cause of unnatural sound from CD is a disruption of smooth digital signal flow. Known as "jitter", this misalignment in the time axis can cause the output of the digital-to-analog converter to sound distorted and unnatural.

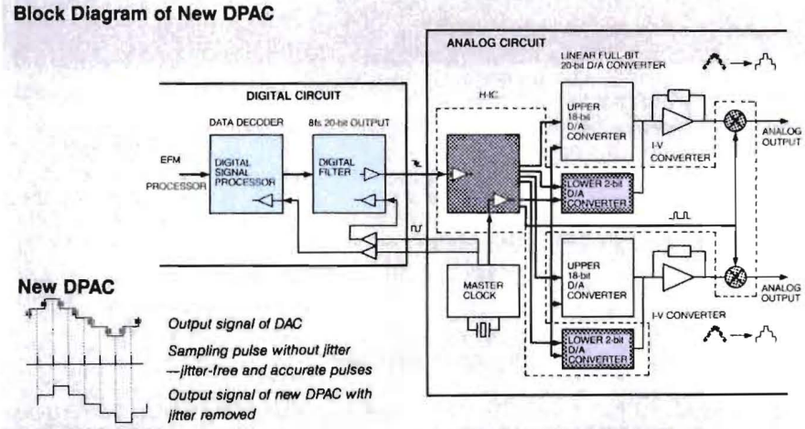
Kenwood's DPAC (Digital Pulse Axis Control) circuit realigns the signal with a super-accurate master clock in the digital domain. The new DPAC circuit also realigns the output of the D/A in the analog stage to compensate for any time alignment problems in the analog conversion process. The result is a refreshingly natural sound totally free of the digital harshness sometimes associated with CD players.

Linear Full-Bit Twin D/A Converter System

Kenwood's Linear Full-Bit D/A Converter System maintains linearity of all the digital signal components. Lack of linearity is why many manufacturers have started using 18 and 20 bit conversion systems. Kenwood has done the same in our higher end CD players but you can be confident that you lose nothing in our standard 16 bit players. That's just not our style.

The 18 and 20 bit converters also employ our Linear Full-Bit D/A conversion system for the utmost in accuracy.

Block Diagram of New DPAC



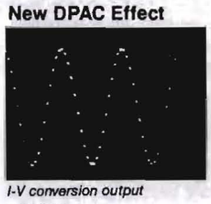
New DPAC

Output signal of DAC

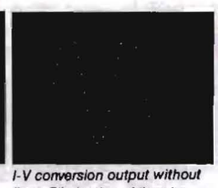
Sampling pulse without jitter —jitter-free and accurate pulses

Output signal of new DPAC with jitter removed

New DPAC Effect

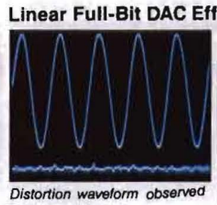


I-V conversion output with jitter.

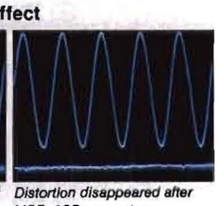


I-V conversion output without jitter. Elimination of jitter by new DPAC.

Linear Full-Bit DAC Effect



Distortion waveform observed prior to correction.



Distortion disappeared after MSB, 2SB correction.

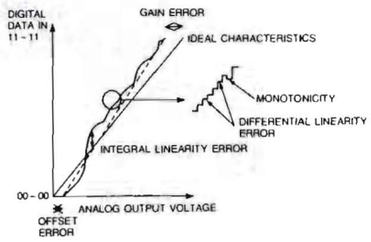
469.—

DP-7020 Single Drawer 20-Bit Compact Disc Player

■ New D.P.A.C. (Digital Pulse Axis Control) ■ C.C.R.S. (Computer Controlled CD Recording System) ■ Optimum Servo Control Laser Tracking System ■ Twin 20-Bit Full Bit Linear D/A Converters ■ 8-Times Oversampling Digital Filter ■ Optical Digital Output ■ Vibration Damping Dual Layer Chassis Top ■ Program Edit Function with Random Programming For Easy Tape Copying ■ 4 Mode Time Display ■ 20 Song Music Calendar ■ 20 Track Program Memory ■ Timer Play ■ Random Play with Disc Memory ■ 20-Key Direct Track Access ■ Gold Plated Headphone Jack with Level Control ■ 3" CD Single Compatible ■ Full Function Wireless Remote Control ■ System Remote Controllable ■ Auto Function

Performance Requirements of DAC

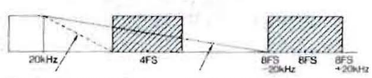
Differential linearity error



Oversampling

Kenwood's 4-times and 8-times oversampling digital filters eliminate the need for steep "brick wall" filters in the analog domain. The output is fed to linear full-bit twin D/A converters which convert every detail of the original digital signal into analog format with superb linearity. Nothing is lost or altered, so you hear the music in all its original freshness.

8-times Oversampling Filter



**Analog low pass filter slope required for 4-times oversampling*

**Analog low pass filter slope required for 8-times oversampling*

New Multi-Insulation System

This vibration deadening system employs a 5-point strategy to eliminate internally and externally generated shocks which could detract from accurate reproduction. Comprehensive protection is provided by a 2-layer chassis, special insulators for the disc drive and printed circuit boards, hybrid insulators separating the pickup assembly from the power supply and feet incorporating elastic polymer dampers.

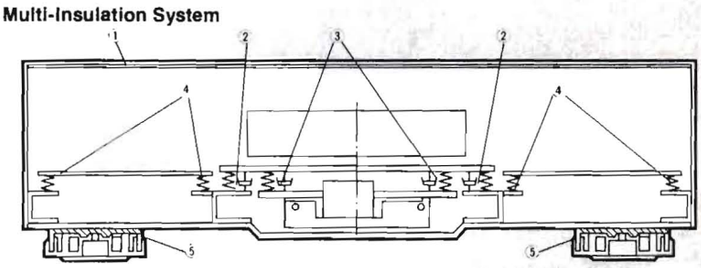
Full Function Remote Controls

In addition to the usual functions such as PLAY, PAUSE AND STOP, many of the remotes packaged with the CD players have 10-Key direct access song selection. Some even have 20-Key access for even greater convenience.

20-Track Direct Access

The numeric keypads on the front panel and remote control let you skip to the song of your choice by pressing a single key. You can say goodbye to the time consuming business of repeatedly pressing the track skip keys in order to locate a particular selection on a compact disc. For the first 20 tracks on the CD, all you need to do is press the key marked with the same number as the song you want to hear and it begins playing almost immediately.

New Multi-Insulation System



①. DOUBLE LAYER BONNET ②. INSULATOR FOR MECHANISM (RUBBER)
③. HYBRID INSULATOR (RUBBER AND COIL SPRING) ④. PC BOARD INSULATOR
⑤. THERMOPLASTIC POLYESTER ELASTOMER RESIN INSULATION FEETS

DP-5020 Single Drawer 20-Bit Compact Disc Player

■ New D.P.A.C. (Digital Pulse Axis Control) ■ C.C.R.S. (Computer Controlled CD Recording System) ■ Optimum Servo Control Laser Tracking System ■ Twin 20-Bit Full Bit Linear D/A Converters ■ 8-Times Oversampling Digital Filter ■ Vibration Damping Dual Layer Chassis Top ■ Program Edit Function with Random Programming For Easy Tape Copying ■ 4 Mode Time Display ■ 20 Song Music Calendar ■ 20 Track Program Memory ■ Timer Play ■ Random Play with Disc Memory ■ 20-Key Direct Track Access ■ Gold Plated Headphone Jack with Level Control ■ 3" CD Single Compatible ■ Full Function Wireless Remote Control ■ System Remote Controllable ■ Auto Function

DP-3020 Single Drawer Compact Disc Player

■ D.P.A.C. (Digital Pulse Axis Control) ■ C.C.R.S. (Computer Controlled CD Recording System) ■ Optimum Servo Control Laser Tracking System ■ Twin 18-Bit Full Bit Linear D/A Converters ■ 8-Times Oversampling Digital Filter ■ Program Edit Function with Random Programming For Easy Tape Copying ■ 20 Song Music Calendar ■ 20 Track Program Memory ■ Timer Play ■ Random Play with Disc Memory ■ 20-Key Direct Track Access ■ Gold Plated Headphone Jack with Level Control ■ 3" CD Single Compatible ■ Full Function Wireless Remote Control ■ System Remote Controllable ■ Auto Function

DP-1520 Single Drawer Compact Disc Player

■ D.P.A.C. (Digital Pulse Axis Control) ■ C.C.R.S. (Computer Controlled CD Recording System) ■ Optimum Servo Control Laser Tracking System ■ Twin 16-Bit Full Bit Linear D/A Converters ■ 4-Times Oversampling Digital Filter ■ 20 Track Program Memory ■ Timer Play ■ Random Play with Disc Memory ■ 10-Key Direct Track Access via Remote Control ■ Gold Plated Headphone Jack with Level Control ■ 3" CD Single Compatible ■ Full Function Wireless Remote Control ■ System Remote Controllable ■ Auto Function

Your Choice of Four CD Player Configurations

■ *Single Drawer*

The single drawer changer has lost some of its appeal to the general population. But to the discriminating audio listener it is still the configuration of choice. The single drawer format allows easy changing of discs, and easy access to individual songs without waiting for magazines or rotary changers to load the CD. The mechanisms also have the potential to be built stronger and require fewer moving parts as compared to changer types. If you do a great deal of single song recording to cassettes for listening in your car you might want a single drawer CD player for its convenience and sound quality.

■ *6-Disc Magazine Changer*

The magazine changer has been around for a couple of years now and is ever growing in popularity. The easy to store magazines can be filled with a type of music or a favorite artist and be put in for immediate listening pleasure. Maybe a magazine for Dance music, one for Rock and Roll Classics, one for favorite Beethoven Symphonies and another for those romantic evenings at home. No fumbling with jewel boxes or not being able to find exactly what you need for the moment, you can have a series of magazines preloaded. Just insert and go.

■ *6+1 Disc Magazine Changer*

The convenience of a 6 disc changer goes one step further with the inclusion of a separate single drawer. While the magazine is playing, you can put another disc into the single drawer. Then change CD's at the touch of a button. This is the best of both worlds. The storage and cataloging of a magazine with the simplicity and ease of a single drawer system.

■ *5-Disc Rotary Type CD Changer*

The DP-R4420 is a new way to enjoy multiple CDs. Its rotary style platter holds up to five discs; that's a possibility of over six hours of uninterrupted music.

Once the discs are loaded, all you do is press the appropriate Disc Selector button to begin play immediately with the CD of your choice. There are fewer moving parts than with a magazine type changer, but you also still have the jewel boxes to contend with and the lack of a single drawer possibility.

DP-R442O

Rotary Style Compact Disc Changer

■5 Disc Rotary Style CD Changer Mechanism ■D.P.A.C. (Digital Pulse Axis Control) ■C.C.R.S. (Computer Controlled CD Recording System) ■Optimum Servo Control Laser Tracking System ■Twin 16-Bit Full Bit Linear D/A Converters ■4-Times Oversampling Digital Filter ■Inner Track Audible Scan ■20 Track Program Memory ■Timer Play ■Random Play ■10-Key Direct Track Access via Remote Control ■Gold Plated Headphone Jack with Level Control ■3" CD Single Compatible ■Full Function Wireless Remote Control ■System Remote Controllable ■Auto Function

DP-M662O

6+1 Magazine Type CD Changer with Single Drawer

■6 Disc Magazine Type CD Changer Mechanism ■Additional Single Drawer ■D.P.A.C. (Digital Pulse Axis Control) ■C.C.R.S. (Computer Controlled CD Recording System) ■Optimum Servo Control Laser Tracking System ■Twin 18-Bit Full Bit Linear D/A Converters ■8-Times Oversampling Digital Filter ■Optical Digital Output ■32 Track Program Memory ■Timer Play ■Random Play ■10-Key Direct Track Access via Remote Control ■Gold Plated Headphone Jack with Level Control ■3" CD Single Compatible Single Drawer and with Optional CDM-608 ■Full Function Wireless Remote Control ■System Remote Controllable ■Auto Function

DP-M552O

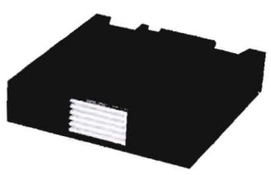
6 Disc Magazine Type CD Changer

■6 Disc Magazine Type CD Changer Mechanism ■D.P.A.C. (Digital Pulse Axis Control) ■C.C.R.S. (Computer Controlled CD Recording System) ■Optimum Servo Control Laser Tracking System ■Twin 18-Bit Full Bit Linear D/A Converters ■8-Times Oversampling Digital Filter ■32 Track Program Memory ■Timer Play ■Random Play ■10-Key Direct Track Access via Remote Control ■Gold Plated Headphone Jack with Level Control ■3" CD Single Compatible Single Drawer and with Optional CDM-608 ■Full Function Wireless Remote Control ■System Remote Controllable ■Auto Function

CDM-6OO

Optional Disc Magazine

■Single Drawer Loading ■Easy Storage Of CD's Without Jewel Boxes ■Mix Drawers with CDM-608 for Greater Flexibility ■Compatible with DP-M6620, DP-M5520, DP-M6010, DP-M4010 and DP-M109



CDM-6O8

Optional Disc Magazine for 3" CD Singles

■Single Drawer Loading ■Easy Storage Of CD Singles ■Mix Drawers with CDM-600 for Greater Flexibility ■Compatible with DP-M6620, DP-M5520, DP-M6010, DP-M4010 and DP-M109

TUNER

For optimum enjoyment of FM or AM broadcasts, this tuner is equipped with Kenwood's latest technology. It's a solid performer that's a perfect match for a system of Kenwood components.

DPD—Direct Pure Decoder Sample & Hold MPX

The KT-5020 uses an advanced digital sample and hold design to decode the stereo signal, not a simple switching system. It reads off the left and right channel information directly, sampling the upper and lower envelopes of the composite signal for increased stereo separation.

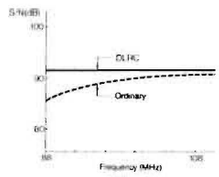
DLLD—Direct Linear Loop Detector with DCC Module

The highly linear detector circuit used in the KT-5020 is designed to significantly widen the dynamic range the tuner can handle without distortion, an important consideration as the quality of FM broadcast signals improves. Called the Direct Linear Loop Detector, it extends high and low frequency fidelity and exhibits superior phase characteristics which contribute to accurate sound stage imaging. A special DCC (Distortion Correcting Circuit) module in the demodulator compensates for harmonic distortion generated by IF stage filter characteristics.

DLRC—Direct Linear Reception Circuit

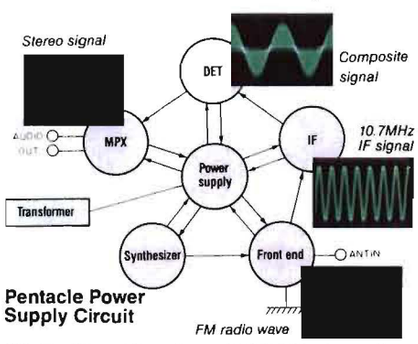
Though it might come as a surprise, conventional tuners employing analog local oscillators often boast better signal-to-noise ratios than their more modern quartz synthesizer cousins. The difference is due to digital noise which can sometimes cover up the subtle, quiet portions of the signal. The Direct Linear Reception Circuit clears up this digital noise while retaining quartz tuning precision. The sound is as good as an analog tuner, but the one-touch tuning convenience remains.

S/N Effect of Linear Reception Synthesizer



Pentacle Power Supply

Kenwood's innovative pentacle power supply configuration eliminates interference between tuner circuits which can arise if they share a common power supply line. Each of the KT-5020's circuit stages is connected directly to the power supply. The lack of interference means better definition in the sound you hear.



Pentacle Power Supply Circuit

20-Station Random FM/AM Preset Memory

The KT-5020 lets you store up to 20 AM or FM stations for one-touch recall. The tuner remembers whether each preset is AM or FM, so you don't have to set the band selector before recalling a station.

Wide/Narrow IF Selector

You can set the IF (intermediate frequency) bandwidth to either wide or narrow. Choose wide for well isolated stations to enjoy optimum phase linearity. If you experience interference from adjacent channels, switch to the narrow IF bandwidth for increased selectivity. Though it sounds complicated, the selector is actually very easy to use. Just switch between the two settings to see which sounds better for the station in question.

Automatic Quieting Control

Unlike the mono/stereo selector found on most tuners, the KT-5020's automatic quieting control helps to mute inter-station noise while still allowing reception of weaker stations.

Flex-On Circuit Board Suspension System

The circuit boards in the KT-5020 are supported by a special suspension system that helps dampen frame and external vibrations which could interfere with the accurate operation of their precision electronic components.

System Remote Controlled Operation

The KT-5020 is controllable via the system remote control. You can access all the presets and even scan the presets from your chair.

■ Direct Linear Reception Circuit ■ Pentacle Power Supply ■ Quartz Synthesized Computer Controlled Tuning System ■ 20-Station Random FM/AM Preset Memory ■ Wide/Narrow FM IF Bandwidth Selector ■ Fluorescent Display ■ Flex-On Printed Circuit Board System for Better Sound ■ Direct Linear Loop Detector (DLLD) ■ System Remote Controllable ■ Auto Function

KT-5020 Quartz Synthesized Digital Tuner

AUTO FUNCTION

TURNTABLE

Fully automatic convenience is yours in this Kenwood direct-drive turntable featuring a linear tonearm for superior tracking accuracy.

Quartz PLL Direct Drive

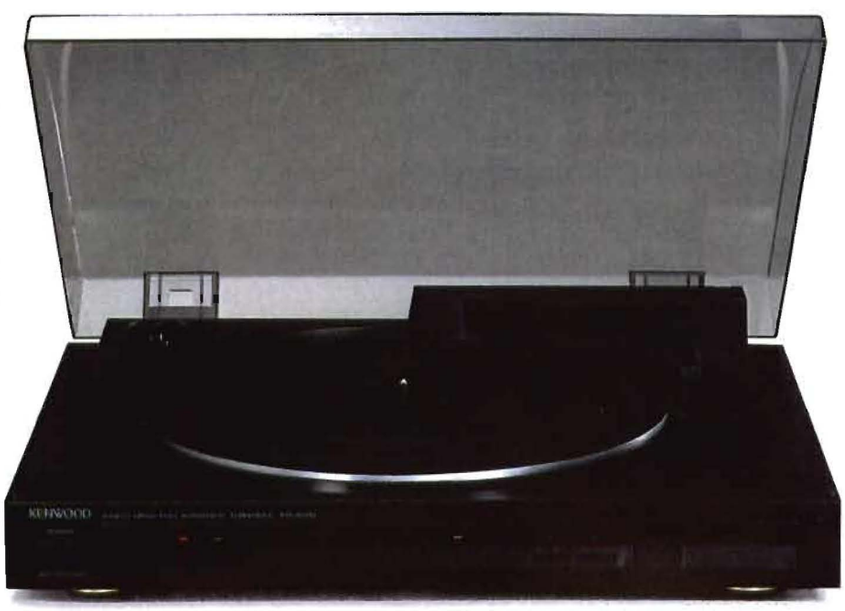
The KD-4020's quartz phase locked loop direct drive system minimizes the wow & flutter which can cause small pitch fluctuations in the reproduced sound. No belts, or other speed step-down devices means steady, stable operation. In addition, motor rotations are constantly monitored by a servo control system that is phase locked to a highly accurate quartz reference frequency. It immediately makes corrections to maintain the correct speed the instant any deviation is detected.

Automatic Operation—Auto Lead-In and Auto Return

More than just a convenience, automatic tonearm operation guards your records and the phono stylus from slip-ups that can occur even with the most careful manual handling. At the beginning of the record, the tonearm automatically goes to the lead-in groove. It then rises and returns to the arm rest after play finishes.

Linear Tonearm

For the ultimate in tracking accuracy, the KD-4020 features a linear tracking tonearm. Instead of pivoting in an arc as the record plays, the entire tonearm moves toward the center, parallel to the record grooves. This arrangement assures optimal tracking angle at all times and is less prone to skipping caused by record bumps and scratches.



KD-4020 Direct Drive Linear Tracking Turntable

AUTO FUNCTION

■ Quartz PLL Direct Drive ■ Fully Automatic Operation ■ Linear Tracking Mechanism ■ Manual Search Keys
■ Auto Disc Size Selector ■ 45 RPM Single Adapter with Storage ■ Dynamic Isolation Feet
■ All Control Outside Dust Cover ■ Cartridge Included ■ System Remote Controllable ■ Auto Function

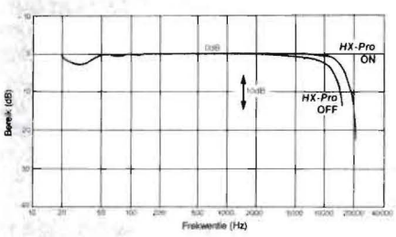
CASSETTE DECKS

For flexibility and convenience, cassette tapes are hard to beat. You can be assured of the best sound possible from any tape with a Kenwood cassette deck.

Dolby HX-Pro Headroom Extension

Unlike Dolby B and C NR, which are designed to reduce noise, Dolby HX-Pro works to widen the dynamic range of the tape. It operates independently of noise reduction to extend high frequency headroom for better handling of treble signal peaks. It uses a "sliding band" technique to dynamically adjust the recording bias and prevent excessive "self biasing" which occurs because of the high frequency components in the audio signal itself. Since Dolby HX-Pro only works in the record mode , tapes recorded using Dolby HX-Pro can be played back on decks not equipped with the system.

Frequency Response Improvement with Dolby HX-Pro (Normal Tape)



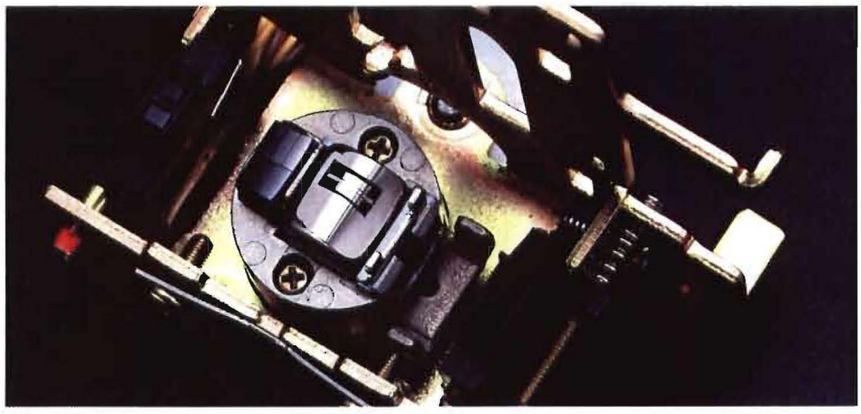
Auto-Bias Adjustment

Most cassette decks have three tape selector settings—normal, high and metal. But the recording bias currents for each are calibrated using a standard reference tape and don't take into account the differences—sometimes quite considerable—in actual bias requirements for different tape brands.

At the touch of a button, auto-bias adjustment automatically fine tunes the recording bias to match any tape. It helps to make sure that your recordings reflect the best that the tape is able to produce.

Precision Auto-Reverse Mechanism

Kenwood auto reverse cassette decks utilize a rotary head to assure consistently superior performance on both tape sides. This system allows for the independent alignment of each tape side with the heads so there is no loss of high frequencies as with a standard 4 track cassette head.



Two Decks in a Single Chassis

The KX-W8020 and KX-W6020 each boast dual tape transports, so operations which used to require two separate decks can be accomplished with just one.

Synchronized control makes tape dubbing and editing a breeze. Now you need never experience the frustration ruined recordings caused when one cassette transport starts just a little too late.

And since both transports are equipped with auto-reverse, you can listen to up to three hours of uninterrupted music without changing cassettes (with two C-90 cassettes).

Dubbing in Half the Time

The high speed dubbing function makes copying tapes a quick, foolproof operation. Copying a C-60 cassette requires only 30 minutes. On decks equipped with full electronic logic the dubbing process is done at the touch of a single button.

Remote Control

All major cassette deck functions are accessible using Kenwood System Remote Controls for convenient armchair operation.

DPSS—Direct Program Search System

Most manufacturers incorporate a "tape search" feature in their cassette decks. DPSS is what we call ours. DPSS is a great way to access the contents of a cassette quickly and efficiently. While a tape is playing, hit the FF or REW key. The deck automatically searches in the indicated direction for the breaks between selections.

But there's more...Kenwood is never satisfied with what everyone else is doing. We have taken "tape search" beyond the norm. We incorporate a few extras in our decks. (please check individual listings for functions included in decks)

- **16 Track Access**-What if you want to go ahead 3 or 4 songs not just one. With DPSS you just press FF or RWD the number of songs you wish to advance or rewind to. Remember in RWD the song you are on counts as one.
- **Index Scan**-plays the first 10 seconds of each song
- **Re-Recording Standby**-If you make a mistake while recording simply press RWD and the tape will go back to where you last started recording and enter the REC pause mode so you can try again.
- **Dash and Play**-Press the FF and RWD buttons together and the deck will go into the play monitor mode. If there is 15 seconds of silence on the tape the unit will fast forward to the next available song.
- **Single Selection Repeat**-Press Play during playback and the current song will repeat.

KX-W8020 Double Auto-Reverse Cassette Deck

■ Dual Bi-Directional Recording/Playback ■ Dolby HX-Pro Headroom Extension (Deck B) ■ Auto-Bias Adjustment (Deck B) ■ C.C.R.S. (Computer Controlled CD Recording System) ■ D.P.S.S. (Direct Program Search System) ■ Full Logic Computer Controlled Tape Transport with 2-Motor Drive ■ Dolby C and B NR Systems ■ Separate Record Level and Record Balance with Center Detent ■ Independent Control for A and B Cassette Wells ■ Continuous Relay Play ■ One Touch Normal and High-Speed Dubbing ■ Timer Recording and Playback ■ Index Scan (Deck A) ■ Automatic Tape Selector ■ Multi-Function Fluorescent Information Display ■ System Remote Controllable ■ Auto Function

KX-W6020 Double Auto-Reverse Cassette Deck

■ Double Auto-Reverse Cassette Mechanism ■ Dolby HX-Pro Headroom Extension (Deck B) ■ Auto-Bias Adjustment (Deck B) ■ C.C.R.S. (Computer Controlled CD Recording System) ■ D.P.S.S. (Direct Program Search System) ■ Full Logic Computer Controlled Tape Transport with 2-Motor Drive ■ Dolby C and B NR Systems ■ Separate Record Level and Record Balance with Center Detent ■ Independent Control for A and B Cassette Wells ■ Continuous Relay Play ■ One Touch Normal and High-Speed Dubbing ■ Timer Recording and Playback ■ Index Scan (Deck A) ■ Automatic Tape Selector ■ System Remote Controllable ■ Auto Function

KX-4520 3-Head Stereo Cassette Deck

■ 3-Head Tape Transport ■ Dolby HX-Pro Headroom Extension ■ C.C.R.S. (Computer Controlled CD Recording System) ■ Closed Loop Dual Capstan Drive ■ Auto-Bias Adjustment ■ Dolby C and B NR Systems ■ Tape Path Stabilizer ■ 210 kHz Bias ■ Separate Record Level and Record Balance with Center Detent ■ Switchable MPX Filter ■ Automatic/Manual Tape/Source Selector ■ Feather Touch Full Logic Controlled Mechanism ■ 9-Key Wireless Remote Control ■ Linear Tape Counter ■ Remote Controllable

■ Auto-Reverse Mechanism with 2-Track Rotary Head Mechanism ■ Dolby HX-Pro Headroom Extension ■ Automatic Bias Adjustment ■ Tape Path Stabilizer ■ Large Fluorescent Display with Linear Tape Counter ■ Direct 16-Program Search System (DPSS) ■ Index Scan ■ Separate Record Level and Record Balance with Center Detent ■ Blank Search ■ Feather Touch Full Logic Controlled Mechanism ■ Re-recording Standby ■ Timer Record and Play ■ Automatic Tape Selector ■ System Remote Controllable ■ Auto Function

KX-351O Auto-Reverse Stereo Cassette Deck

■ Auto-Reverse Mechanism with 2-Track Rotary Head Mechanism ■ Dolby HX-Pro Headroom Extension ■ C.C.R.S. (Computer Controlled CD Recording System) ■ D.P.S.S. (Direct Program Search System) ■ Dolby C and B NR Systems ■ Index Scan ■ Separate Record Level and Record Balance with Center Detent ■ Feather Touch Full Logic Controlled Mechanism ■ Timer Record and Play ■ Automatic Tape Selector with Tape Indicator ■ System Remote Controllable ■ Auto Function

KX-252O Auto-Reverse Stereo Cassette Deck

■ Dolby HX-Pro Headroom Extension ■ C.C.R.S. (Computer Controlled CD Recording System) ■ D.P.S.S. (Direct Program Search System) ■ Dolby C and B NR Systems ■ Index Scan ■ Separate Record Level and Record Balance with Center Detent ■ Feather Touch Full Logic Controlled Mechanism ■ Timer Record and Play ■ System Remote Controllable ■ Auto Function

KX-2O2O Stereo Cassette Deck

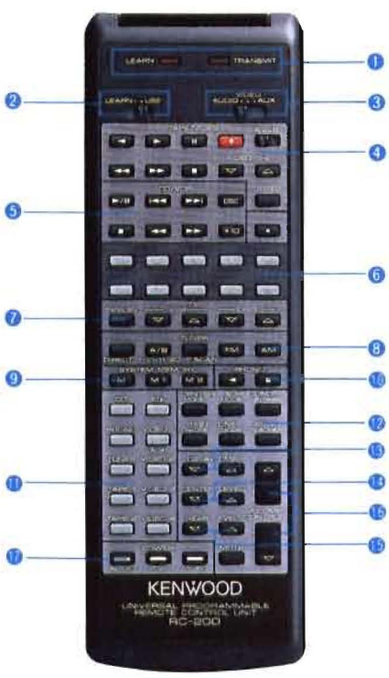
GRAPHIC EQUALIZER

Nothing adds new life to an old system like a graphic equalizer. And Kenwood offers just the piece you've been looking for.

GE-5020 7-Band Electronic Graphic Equalizer

■ 7-Band Equalization ■ Independent Left/Right Channel Adjustment ■ Range Switchable Between ±12 dB and ±6 dB ■ 10 EQ Memory Presets (5 Factory / 5 User) ■ 7-Band Spectrum Analyzer Display with Adjustable Level ■ Separate Left & Right Channel Fluorescent Displays ■ Reverse Mode Switch ■ One Button EQ Flat Switch ■ Connection for Tape Deck ■ Equalizer Recording Capability ■ System Remote Controllable

ACCESSORY



❶ **INDICATORS** for learn and transmit

❷ **LEARN/USE** mode

❸ **3 MODE SELECTORS** Audio/Video/AUX

❹ **TAPE/VIDEO** controls

❺ **CD/VDP** and controls with disk select for multiple player, +10 key input

❻ **TEN-KEY INPUT** for audio, TV or video

❼ **TV OPERATIONS** with TV/video selector, channel select, volume adjustment

❽ **TUNER** functions with 10-key tuning, preset scan

❾ **SYSTEM MEMORY** controls

❿ **PHONO** controls with automatic play & stop

⓫ **INPUT SELECT** CD, equalizer, phono, tape 1 & 2, tuner, video 1/AUX, 2, 3 & 4

⓬ **CENTER, SURROUND, TEST TONE & ON SCREEN MENU** modes

⓭ **DELAY TIME** controls

⓮ **CENTER LEVEL** controls

⓯ **REAR LEVEL** controls

⓰ **VOLUME** controls & **MUTING**

⓱ **AUDIO, TV, VIDEO** power ON/OFF

RC-200 Programmable Remote Controller

Learning Remote Control

The RC-200 is the only remote control unit you'll ever need. Capable of controlling a full Kenwood system, including volume adjustment and video components, it also lets you customize its operation to cover virtually any other remote controllable component. It has the capability of controlling CD players, Video Disc Players, TV's, plus 6 different cassette tape mechanisms including VCR's. The RC-200's ability to learn up to 160 functions in addition to the Kenwood remote functions it already knows should be enough to meet your needs now and in the future.

SUPER WOOFER

From the lowest lows to the highest highs, from the quietest pianissimos to thundering dynamic peaks, Kenwood loudspeakers bring you the music—faithfully.

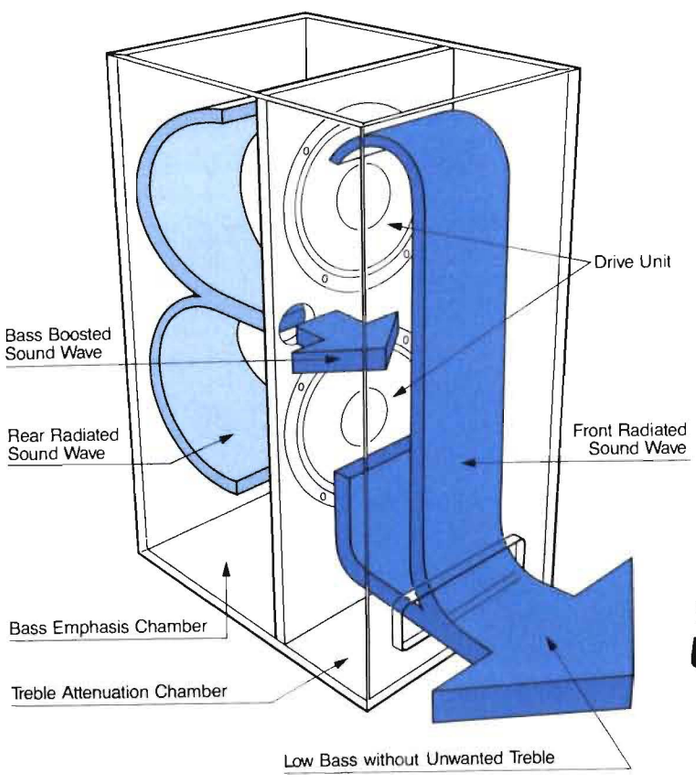
Super Woofer

Kenwood Super Woofer systems firmly establish the sonic underpinnings for true high fidelity sound. Deep bass that's tight and alive, not boomy or flabby. Seamless integration with the midrange and treble frequencies—all in an attractive space-saving format. A Super Woofer system is a loudspeaker solution for today, and tomorrow.

Solid Bass without Boominess or Muddiness

Kenwood's Super Woofer systems provide innovative solutions to a variety of problems which have traditionally plagued conventional speaker systems. Principle among these is the perennial conundrum of how to achieve powerful low bass response without interfering with midrange and treble clarity.

Inside View of JL-W900 Dual Tuned Port Acoustic Bass Resonator



The solution: a 3-D configuration consisting of a separate bass unit—the Super Woofer—and a pair of satellite speakers with frequency characteristics perfectly matched with it and each other. Using separate speaker cabinets for low and for mid-high keeps mutual interference to a minimum and results in a truly astonishing boost in definition and realism.

Compact Dimensions

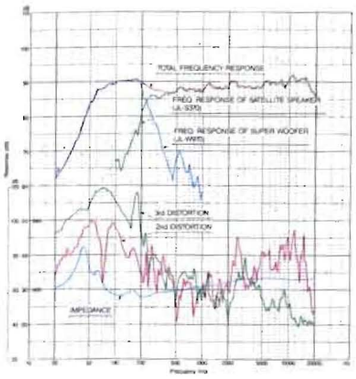
Three speaker cabinets instead of two might seem too much for the average home listening room. But the Super Woofer configuration actually ends up saving space while it improves performance. The low range unit can be put away out of sight. It doesn't even need to be right in the center. And since the satellites contain only the midrange and treble drivers, they're quite elegantly compact.

A Unified Sonic Image from Three Sources

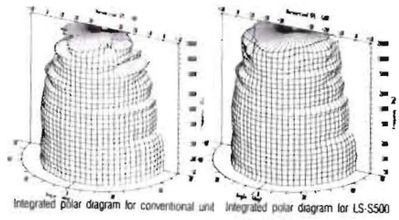
Audio specialists use the term "3-D" to describe arrangements like the Super Woofer system which use a single subwoofer—not two bass drivers as in conventional speaker systems. One low range unit can do the job because low bass energy—unlike the higher frequencies—does not seem to emanate from any single direction when we listen to music. Rather, it appears to well up around the listener, providing a sonic basis for the entire musical fabric.

SUPER WOOFER SYSTEM

Frequency response for LS-S500 with LS-W900



Integrated polar diagram shows smoothness of frequency coverage



For this reason, a 3-D system is actually able to provide more convincing low bass response than most conventional speaker systems. Being in a separate cabinet, the bass drivers do not interfere with the optimum functioning of the midrange and tweeter, so the higher frequencies are clear and well defined. The low range unit is maximized for its specific frequency range. It even contains an "acoustic filter" to attenuate the upper midbass and midrange elements which could defeat its purpose by adding spurious localization cues and muddying the output from the satellites.

Easy Installation

Some 3-D systems almost require you to become an audio engineer by making you fool around with complicated crossover networks and labyrinth connections. But installing a Super Woofer system is a breeze. The standard left and right amplifier speaker output terminals are all it uses.

LS-W9010 Super Woofer System

LS-W900 Super Woofer

■ Dual-Chamber, Acoustic Bass Resonator ■ Acoustic High-Cut Filter
■ 8-Inch Twin Bass Drivers with Non-Pressed Cone Diaphragms
■ Simulated Woodgrain Finish

LS-S500 Satellite Speaker System

■ Slim Floor Standing Design ■ Low Resonance Cabinet ■ Acoustic Suspension Construction ■ Symmetrically Balanced High Coherency 2-Way, 3-Speaker System ■ Twin 4-1/2 Inch Polypropylene Cone Midrange ■ Central 1-Inch Dome Tweeter with Spherical Wave Baffle ■ Simulated Woodgrain Finish ■ 180 W Maximum Input Power (as System) ■ Frequency Response: 30 Hz—20 kHz (as System)

LS-W7010 Super Woofer System

LS-W700 Super Woofer

■ Dual-Chamber, Acoustic Bass Resonator ■ Acoustic High-Cut Filter ■ 6-1/2 Inch Twin Bass Drivers with Non-Pressed Cone Diaphragms ■ Simulated Woodgrain Finish

LS-S500 Satellite Speakers

■ Slim Floor Standing Design ■ Low Resonance Cabinet ■ Acoustic Suspension Construction ■ Symmetrically Balanced High Coherency 2-Way, 3-Speaker System ■ Twin 4-1/2 Inch Polypropylene Cone Midrange ■ Central 1-Inch Dome Tweeter with Spherical Wave Baffle ■ Simulated Woodgrain Finish ■ 140 W Maximum Input Power (as System) ■ Frequency Response: 30 Hz—20 kHz (as System)

LS-W5010 Super Woofer System

LS-W900 Super Woofer

■ Dual-Chamber, Acoustic Bass Resonator ■ Acoustic High-Cut Filter ■ 8-Inch Twin Bass Drivers with Non-Pressed Cone Diaphragms ■ Simulated Woodgrain Finish

LS-S300 Satellite Speakers

■ Right Angle Pentagonal Design for Easy Room Positioning ■ Acoustic Suspension Construction ■ 2-Way, 2-Speaker System ■ 4-1/2 Inch Polypropylene Cone Midrange ■ 1-Inch Dome Tweeter with Spherical Wave Baffle ■ Simulated Woodgrain Finish ■ 180 W Maximum Input Power (as System) ■ Frequency Response: 30 Hz—20 kHz (as System)

LS-W3010 Super Woofer System

LS-W700 Super Woofer

■ Dual-Chamber, Acoustic Bass Resonator ■ Acoustic High-Cut Filter ■ 6-1/2 Inch Twin Bass Drivers with Non-Pressed Cone Diaphragms ■ Simulated Woodgrain Finish

LS-S300 Satellite Speakers

■ Right Angle Pentagonal Design for Easy Room Positioning ■ Acoustic Suspension Construction ■ 2-Way, 2-Speaker System ■ 4-1/2 Inch Polypropylene Cone Midrange ■ 1-Inch Dome Tweeter with Spherical Wave Baffle ■ Simulated Woodgrain Finish ■ 140 W Maximum Input Power (as System) ■ Frequency Response: 30 Hz—20 kHz (as System)

SPECIFICATIONS

Receivers	KR-V9020	KR-V8020	KR-V7020	KR-V6020	KR-A5020	KR-A4020
AUDIO SECTION						
Power Output (Front)	130W per channel min RMS, both channels driven at 8 ohms from 20Hz–20kHz with no more than 0.008% THD	100W per channel min RMS, both channels driven at 8 ohms from 20Hz–20kHz with no more than 0.008% THD	100W per channel min RMS, both channels driven at 8 ohms from 20Hz–20kHz with no more than 0.06% THD	70W per channel min RMS, both channels driven at 8 ohms from 20Hz–20kHz with no more than 0.08% THD	60W per channel min RMS, both channels driven at 8 ohms from 20Hz–20kHz with no more than 0.09% THD	40W per channel min RMS, both channels driven at 8 ohms from 40Hz–20kHz with no more than 0.09% THD
(Rear)	20 watts per channel min RMS, both channels driven at 8 ohms at 1kHz with no more than 0.9% THD	20 watts per channel min RMS, both channels driven at 8 ohms at 1kHz with no more than 0.9% THD	15 watts per channel min RMS, both channels driven at 8 ohms at 1kHz with no more than 0.9% THD	5W per channel min RMS, both channels driven at 8 ohms at 1kHz with no more than 0.9% THD	—	—
Total Harmonic Distortion (20Hz–20kHz, 8 ohms)	0.008%	0.008%	0.06%	0.08%	0.09%	0.07% (40Hz–20kHz, 8 ohms)
(1kHz, 8 ohms)	0.003%	0.003%	0.01%	0.01%	0.01%	0.01%
Intermodulation Distortion	0.008% at 130W	0.008% at 100W	0.06% at 100W	0.08% at 70W	0.09% at 60W	0.09% at 40W
Input Sensitivity/Impedance						
PHONO (MM)	2.5mV/47k ohms	2.5mV/47k ohms	2.5mV/47k ohms	2.5mV/47k ohms	2.5mV/47k ohms	2.5mV/47k ohms
CD/AUX, TAPE	200mV/47k ohms	200mV/47k ohms	200mV/47k ohms	200mV/47k ohms	150mV/47k ohms	150mV/47k ohms
VIDEO	250mV/47k ohms	250mV/47k ohms	200mV/47k ohms	200mV/47k ohms	150mV/47k ohms	150mV/47k ohms
Frequency Response						
PHONO (RIAA standard curve)	20Hz–20kHz, ±0.5dB	20Hz–20kHz, ±0.5dB	20Hz–20kHz, ±0.5dB	20Hz–20kHz, ±0.5dB	20Hz–20kHz, ±0.5dB	20Hz–20kHz, ±0.5dB
LINE to SPEAKER	10Hz–100kHz, +0dB, −3dB	10Hz–100kHz, +0dB, −3dB	10Hz–50kHz, +0dB, −3dB	10Hz–50kHz, +0dB, −3dB	10Hz–50kHz, +0dB, −3dB	10Hz–50kHz, +0dB, −3dB
Signal-to-Noise Ratio						
PHONO (MM)	79dB	79dB	81dB	78dB	78dB	78dB
CD/AUX,TAPE	100dB	100dB	100dB	100dB	100dB	100dB
VIDEO	90dB	100dB	100dB	100dB	100dB	100dB
Graphic Equalizer/Tone Control						
Center Frequency	60Hz, 150Hz, 400Hz, 1kHz, 2.4kHz, 6kHz, 15kHz	60Hz, 150Hz, 400Hz, 1kHz, 2.4kHz, 6kHz, 15kHz	Tone Control Bass 100Hz, Treble 10kHz	Tone Control Bass 100Hz, Treble 10kHz	Tone Control Bass 100Hz, Treble 10kHz	Tone Control Bass 100Hz, Treble 10kHz
Control Range	±12dB	±12dB	±10dB	±10dB	±10dB	±10dB
VIDEO SECTION						
Inputs VIDEO 1, 2, 3	1 Vp-p, 75 ohms unbalanced	1 Vp-p, 75 ohms unbalanced	1 Vp-p, 75 ohms unbalanced	1 Vp-p, 75 ohms unbalanced	—	—
Outputs VIDEO 1, 2, MONITOR VIDEO OUT	1 Vp-p, 75 ohms unbalanced	1 Vp-p, 75 ohms unbalanced	1 Vp-p, 75 ohms unbalanced	1 Vp-p, 75 ohms unbalanced	—	—
FM TUNER SECTION						
Tuning Frequency Range	875MHz–108MHz	875MHz–108MHz	875MHz–108MHz	875MHz–108MHz	875MHz–108MHz	875MHz–108MHz
Antenna Impedance	300 ohms balanced & 75 ohms unbalanced	300 ohms balanced & 75 ohms unbalanced	300 ohms balanced & 75 ohms unbalanced	300 ohms balanced & 75 ohms unbalanced	300 ohms balanced & 75 ohms unbalanced	300 ohms balanced & 75 ohms unbalanced
Usable Sensitivity	10.8dBf (0.95μV)	10.8dBf (0.95μV)	10.8dBf (0.95μV)	10.8dBf (0.95μV)	10.8dBf (0.95μV)	10.8dBf (0.75μV)
50dB Quieting Sensitivity						
MONO	14.2dBf (1.4μV)	14.2dBf (1.4μV)	16.2dBf (3.5μV)	16.7dBf (3.5μV)	16.2dBf (3.5μV)	16.2dBf (3.5μV)
STEREO	37.2dBf (20μV)	37.2dBf (20μV)	38.2dBf (45μV)	38.2dBf (45μV)	38.2dBf (45μV)	38.2dBf (45μV)
Signal-to-Noise Ratio at 65dBf						
MONO	80dB	80dB	79dB	79dB	79dB	79dB
STEREO	74dB	74dB	73dB	73dB	73dB	73dB
Total Harmonic Distortion at 1kHz						
MONO	0.1%	0.1%	0.3%	0.3%	0.3%	0.3%
STEREO	0.2%	0.2%	0.5%	0.5%	0.5%	0.5%
Frequency Response	30Hz–15,000Hz +0.5dB, −2dB	30Hz–15,000Hz +0.5dB, −2dB	30Hz–15,000Hz +0.5dB, −2dB	30Hz–15,000Hz +0.5dB, −2dB	30Hz–15,000Hz +0.5dB, −2dB	30Hz–15,000Hz +0.5dB, −2dB
Stereo Separation	50dB at 1,000Hz	50dB at 1,000Hz	45dB at 1,000Hz	45dB at 1,000Hz	45dB at 1,000Hz	45dB at 1,000Hz
Selectivity	53dB at 400Hz	53dB at 400Hz	53dB at 400Hz	53dB at 400Hz	53dB at 400Hz	53dB at 400Hz
Capture Ratio	1.2dB	1.2dB	2.0dB	2.0dB	2.0dB	2.0dB
Image Rejection Ratio	40dB	40dB	50dB	50dB	50dB	50dB
IF Rejection Ratio	86dB	86dB	85dB	85dB	85dB	85dB
Spurious Rejection Ratio	80dB	80dB	75dB	75dB	75dB	75dB
AM Suppression Ratio	57dB	57dB	65dB	65dB	65dB	65dB
AM TUNER SECTION						
Usable Sensitivity	10μV (400μV/m)	10μV (400μV/m)	12μV (400μV/m)	12μV (400μV/m)	12μV (400μV/m)	12μV (400μV/m)
Signal-to-Noise Ratio	50dB	50dB	50dB	50dB	50dB	50dB
Total Harmonic Distortion	0.3%	0.3%	0.5%	0.5%	0.5%	0.5%
Selectivity	25dB	25dB	23dB	23dB	23dB	23dB
GENERAL						
Power Requirement	120V, 60Hz	120V, 60Hz	120V, 60Hz	120V, 60Hz	120V, 60Hz	120V, 60Hz
Power Consumption	5A	4.5A	4.3A	2.8A	2.0A	1.9A
AC Outlet	Switched × 3 (200W)	Switched × 3 (200W)	Switched × 3 (200W)	Switched × 3 (200W)	Switched × 3 (200W)	Switched × 1 (200W)
Dimensions (W × H × D)	17-5/16" × 6-1/4" × 16-9/16"	17-5/16" × 8-3/8" × 16-9/16"	17-5/16" × 5-13/16" × 13-3/4"	17-5/16" × 5-13/16" × 13-3/4"	17-5/16" × 5-1/4" × 9-7/8"	17-5/16" × 5-1/4" × 11-3/16"
Weight (Net)	32.4 lbs	27.6 lbs	22.4 lbs	20.3 lbs	14.3 lbs	12.4 lbs

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Compact Disc Players	DP-7020	DP-5020	DP-3020	DP-1520	DP-R4420	DP-M6620
AUDIO						
Number of Channels	2	2	2	2	2	2
Frequency Response	2Hz—20kHz, ±0.5dB	2Hz—20kHz, ±0.5dB	4Hz—20kHz, ±1dB	4Hz—20kHz, ±1dB	20Hz—20kHz, ±2dB	5Hz—20kHz, +1dB, −0.5dB
Signal-to-Noise Ratio	More than 110dB	More than 104dB	More than 90dB	More than 90dB	More than 90dB	More than 95dB
Total Harmonic Distortion	Less than 0.0025% at 1kHz	Less than 0.003% at 1kHz	Less than 0.01% at 1kHz	Less than 0.07% at 1kHz	Less than 0.02% at 1kHz	Less than 0.008% at 1kHz
Channel Separation	More than 105dB at 1kHz	More than 102dB at 1kHz	More than 85dB at 1kHz	More than 85dB at 1kHz	More than 82dB at 1kHz	More than 80dB at 1kHz
Wow & Flutter	Unmeasurable Limit	Unmeasurable Limit	Unmeasurable Limit	Unmeasurable Limit	Unmeasurable Limit	Unmeasurable Limit
Output Voltage						
Analog						
Line Out	2.0V (fixed), 0~2V (variable)	2.0V/1 kohms	1.2V/2.2 kohms	1.2V/2.2 kohms	1.2V/47 kohms	1.2V/2.2 kohms
Digital						
Coaxial	—	—	—	—	—	—
Optical	−15dBm to −21dBm	—	—	—	—	—
Headphones	20mW (8 ohms)	20mW (8 ohms)	20mW/16 ohms	20mW/32 ohms	20mW/16 ohms	20mW/16 ohms
DISC						
Diameter of the Disc	5 1/3"	5 1/3"	5 1/3"	5 1/3"	5 1/3"	5 1/3" (with CDM-608)
Playing Rotation	500-200rpm, counter-clockwise	500-200rpm, counter-clockwise	500-200rpm, counter-clockwise	500-200rpm, counter-clockwise	500-200rpm, counter-clockwise	500-200rpm, counter-clockwise
SIGNAL FORMAT						
Quantization	20 Bits Linear 1 Channel	20 Bits Linear 1 Channel	18 Bits Linear 1 Channel	16 Bits Linear 1 Channel	16 Bits Linear 1 Channel	18 Bits Linear 1 Channel
Conversion Rate	8× Oversampling (352.8kHz)	8× Oversampling (352.8kHz)	8× Oversampling (352.8kHz)	4× Oversampling (176.4kHz)	4× Oversampling (176.4kHz)	8× Oversampling (352.8kHz)
Sampling Frequency	44.1kHz	44.1kHz	44.1kHz	44.1kHz	44.1kHz	44.1kHz
Channel Modulation Code	EFM (Eight to Fourteen Modulation)	EFM (Eight to Fourteen Modulation)	EFM (Eight to Fourteen Modulation)	EFM (Eight to Fourteen Modulation)	EFM (Eight to Fourteen Modulation)	EFM (Eight to Fourteen Modulation)
PICK-UP						
Type	Non-Contact Optical Pickup	Non-Contact Optical Pickup	Non-Contact Optical Pickup	Non-Contact Optical Pickup	Non-Contact Optical Pickup	Non-Contact Optical Pickup
Laser Type	GaAlAs, wavelength 780nm, 3-beam tracking	GaAlAs, wavelength 780nm, 3-beam tracking	GaAlAs, wavelength 780nm, 3-beam tracking	GaAlAs, wavelength 780nm, 3-beam tracking	GaAlAs, wavelength 780nm, 3-beam tracking	GaAlAs, wavelength 780nm, 3-beam tracking
GENERAL						
Power Requirement	120V, 60Hz	120V, 60Hz	120V, 60Hz	120V, 60Hz	120V, 60Hz	120V, 60Hz
Power Consumption	25W	13W	12W	10W	10W	—
Dimensions (W×H×D)	17-5/16"×5-1/16"×12-3/8"	17-5/16"×4-5/8"×12-7/16"	17-5/16"×4-1/4"×10-5/16"	17-5/16"×4-1/4"×10-5/16"	17-5/16"×5"×15-3/8"	17-5/16"×5"×14-7/16"
Weight (Net)	13.0 lbs	9.2 lbs	8.4 lbs	7.7 lbs	12.8 lbs	13.8 lbs

Cassette Decks	KX-W8020	KX-W6020	KX-4520	KX-3510	KX-2520
Type	Double auto reverse cassette deck with Dolby HX-Pro	Double auto reverse cassette deck with Dolby HX-Pro	3-head dual capstan cassette deck with Dolby HX-Pro	Full logic auto reverse cassette deck with Dolby HX-Pro	Full logic auto reverse cassette deck with Dolby HX-Pro
Track System	4-Track 2-Channel Stereo	4-Track 2-Channel Stereo	4-Track 2-Channel Stereo	4-Track 2-Channel Stereo	4-Track 2-Channel Stereo
Recording BIAS	AC (BIAS Frequency: 105kHz)	AC (BIAS Frequency: 105kHz)	AC (BIAS Frequency: 210kHz)	AC (BIAS Frequency: 105kHz)	AC (BIAS Frequency: 105kHz)
Erasing Method	AC	AC	AC	AC	AC
Tape Speed	4.76cm/sec. (1-7/8 ips)	4.76cm/sec. (1-7/8 ips)	4.76cm/sec. (1-7/8 ips)	4.76cm/sec. (1-7/8 ips)	4.76cm/sec. (1-7/8 ips)
Heads	Rec/Play: Hard Permalloy Head Erase: Double Gap Ferrite Head	Rec/Play: Hard Permalloy Head Erase: Double Gap Ferrite Head	Rec: Hard Permalloy Head Play: Hard Permalloy Head Erase: Double Gap Ferrite Head	Rec/Play: Hard Permalloy Head Erase: Double Gap Ferrite Head	Rec/Play: Hard Permalloy Head Erase: Double Gap Ferrite Head
Motors	Electronically-Controlled DC Motor×2	Electronically-Controlled DC Motor×2	Electronically-Controlled DC Motor×2	Electronically-Controlled DC Motor×2	Electronically-Controlled DC Motor×1
Fast Winding Time	Approx. 90 seconds with C-60 Tape	Approx. 90 seconds with C-60 Tape	Approx. 90 seconds with C-60 Tape	Approx. 90 seconds with C-60 Tape	Approx. 90 seconds with C-60 Tape
Frequency Response					
Normal Tape	20Hz—15kHz (30Hz—14kHz, ±3dB)	20Hz—15kHz (30Hz—14kHz, ±3dB)	20Hz—17kHz, ±3dB	20Hz—18kHz (30Hz—16kHz, ±3dB)	20Hz—15kHz (30Hz—14kHz, ±3dB)
CrO_2 Tape	20Hz—16kHz (30Hz—15kHz, ±3dB)	20Hz—16kHz (30Hz—15kHz, ±3dB)	20Hz—18kHz, ±3dB	20Hz—19kHz (30Hz—17kHz, ±3dB)	20Hz—16kHz (30Hz—15kHz, ±3dB)
Metal Tape	20Hz—16kHz (30Hz—15kHz, ±3dB)	20Hz—16kHz (30Hz—15kHz, ±3dB)	20Hz—19kHz, ±3dB	20Hz—20kHz (30Hz—18kHz, ±3dB)	20Hz—16kHz (30Hz—15kHz, ±3dB)
Signal to Noise Ratio					
Dolby C ON	72dB (Normal)	72dB (Normal)	73dB (Metal)	73dB (Normal)	72dB (Normal)
Dolby B ON	65dB (Normal)	65dB (Normal)	66dB (Metal)	66dB (Normal)	65dB (Normal)
Dolby OFF	57dB (Normal)	57dB (Normal)	58dB (Metal)	58dB (Normal)	57dB (Normal)
Harmonic Distortion	Less than 0.6% (at 1kHz, 0dB, 3rd H.D. Normal Tape)	Less than 0.6% (at 1kHz, 0dB, 3rd H.D. Normal Tape)	Less than 0.8% (at 1kHz, 0dB, 3rd H.D. Metal Tape)	Less than 0.8% (at 1kHz, 0dB, 3rd H.D. Normal Tape)	Less than 0.6% (at 1kHz, 0dB, 3rd H.D. Normal Tape)
Wow & Flutter	0.06% (WRMS)	0.08% (WRMS)	0.05% (WRMS)	0.08% (WRMS)	0.08% (WRMS)
Input Sensitivity/Impedance					
Line×2	775mV/50k ohms	775mV/50k ohms	775mV/50k ohms	775mV/50k ohms	775mV/50k ohms
Output Level/Load Impedance					
Line×2	270mV (0dB)/3.9k ohms	270mV (0dB)/3.9k ohms	490mV (0dB)/3.9k ohms	270mV (0dB)/3.9k ohms	270mV (0dB)/3.9k ohms
Headphones×1	0.2mW/8 ohms	0.2mW/8 ohms	0.85mW/8 ohms	0.2mW/8 ohms	0.2mW/8 ohms
Power Requirement	AC 120V, 60Hz	AC 120V, 60Hz	AC 120V, 60Hz	AC 120V, 60Hz	AC 120V, 60Hz
Power Consumption	35W	20W	27W	23W	21W
Dimensions (W×H×D)	17-5/16"×5"×10-3/8"	17-5/16"×5"×10-9/16"	17-5/16"×5"×12-5/8"	17-5/16"×5"×12-7/8"	17-5/16"×5"×10-9/16"
Weight (Net)	11.0 lbs	10.4 lbs	11.7 lbs	10.6 lbs	8.8 lbs

[redacted] 5520	L-1000D
2	2
5Hz–20kHz, +0.5dB, −1dB	2Hz–20kHz, ±0.5dB
M[redacted]an 93dB	More than 107dB
L[redacted]an 0.01% at 1kHz	Less than 0.0015% at 1kHz
M[redacted]an 80dB at 1kHz	More than 108dB at 1kHz
Unmeasurable Limit	Unmeasurable Limit
[redacted] kohms	2.0V/48 ohms (Unbalanced) 4.0V/50 ohms (Balanced)
—	0.5Vp-p 75 ohms
—	−15dBm to −21dBm
20mW/16 ohms	—
[redacted]	
5[redacted]th CDM-608)	5 3/3
500-200rpm, counter-clockwise	500-200rpm, counter-clockwise
[redacted]	
18 Bits Linear 1 Channel	16 Bits Linear 1 Channel
8[redacted]rsampling (352.8kHz)	4 x Oversamping (176.4kHz)
4[redacted]	44.1kHz
EFM (Eight to Fourteen Modulation)	EFM (Eight to Fourteen Modulation)
[redacted]	
N[redacted]tact Optical Pickup	Non-Contact Optical Pickup
G[redacted] wavelength	GaAlAs, wavelength
7[redacted] beam tracking	780nm, 3-beam tracking
[redacted]	
120V, 60Hz	120V, 60Hz
[redacted]	20W
1[redacted] x 5 x 14-7/16"	17-5/16" x 5-3/16" x 15-1/4"
1[redacted]	30.8 lbs

Turntable	KD-4020
MOTOR & TURNTABLE	
Drive System	Direct Drive
Motor	20 Pole, 30 Slot, 3 Phase Brushless Motor
Turntable Platter	11-5/8" Diameter
Speeds	2 Speeds, 33-1/3 and 45 rpm
Wow & Flutter	Less than 0.05%
Rumble	70dB (DIN-weighted)
TONEARM	
Type	Linear Tracking Tonearm
Effective Tonearm Length	5-3/4"
Overhang	—
Tracking Error	±0.5°
CARTRIDGE	
Furnished Cartridge	V-75
Stylus	0.6 mil Diamond
Replacement Stylus	N-75 with 0.6 mil Diamond
Frequency Response	20Hz—20kHz
Output Voltage	2.5mV (1kHz, 5cm/sec.)
Load Impedance	47k ohms
SUPPLIED ACCESSORY	45 rpm Adaptor
GENERAL	
Power Requirement	AC 120V, 60Hz
Power Consumption	12W
Dimensions (W x H x D)	17-5/16" x 4-1/8" x 13-5/8"
Weight (Net)	8.6 lbs

Graphic Equalizer	GE-5020
Equalizer Characteristics Variable Range Individual Channel Adjust	 ±12dB/±6dB 60Hz, 150Hz, 400Hz 1kHz, 2.4kHz, 6kHz, 15kHz
Total Harmonic Distortion	Less than 0.009% (1kHz)
Gain	0dB ±1dB
Maximum Output Voltage	3.7V (THD 0.03%)
Frequency Response	10Hz—100kHz, +1dB, −3dB
Signal-to-Noise Ratio	100dB (Input Short, A Network)
Input Impedance	70k ohms
Output Impedance	600 ohms
Power Requirement	AC 120V, 60Hz
AC Outlet	Unswitched x 1 (200W)
Power Consumption	20W
Dimensions (W x H x D)	17-5/16" x 3-13/16" x 10-7/8"
Weight (Net)	7.9 lbs

AV Amplifier	KA-V6000
Power Output (Front)	70W per channel (stereo), 70W per channel (surround) minimum RMS, both channels driven at 8 ohms from 20Hz—20kHz with no more than 0.08% THD
(Center)	70W per channel minimum RMS, both channel driven, at 8 ohms from 20Hz—20kHz with no more than 0.2% THD
(Rear)	18W per channel minimum RMS, both channels driven at 8 ohms at 1kHz with no more than 0.9% THD
Total Harmonic Distortion (Front) LINE input to SPEAKER output (20Hz—20kHz)	 0.08% at rated output power into 8 ohms
(1kHz)	0.02% at rated output power into 8 ohms
Intermodulation Distortion (60Hz : 7kHz=4 : 1)	0.08% at rated output power into 8 ohms
Frequency Response	5Hz—100kHz/+0dB, −3dB
Input Sensitivity/Impedance PHONO (MM)/(MC) TUNER/AUX/TAPE	 2.5mV/47k ohms 150mV/47k ohms
Signal-to-Noise Ratio (IHF A) PHONO (MM)/(MC) TUNER/AUX/TAPE	 78dB for 2.5mV input 100dB for 150mV input
Phono Maximum Input Level (MM)	145mV (RMS) THD 0.05% at 1kHz
Output Level/Impedance	150mV/800 ohms (Tape Rec)
Phono Frequency Response	RIAA standard curve ±0.3dB (20Hz—20kHz)
Tone Control Bass (at 100Hz) Treble (at 10kHz)	 ±10dB ±10dB
GENERAL	
Power Requirement	AC 120V, 60Hz
Power Consumption	3.3A
Dimensions (W x H x D)	17-5/16" x 6-7/16" x 16-7/8"
Weight (Net)	33 lbs

KX-2020
Full [redacted]assette deck with Dol[redacted]Pro
4-Tr[redacted]hannel Stereo
AC (BIAS Frequency 105kHz)
AC
4.76[redacted] (1-7/8 ips)
Rec[redacted] Hard Permalloy Head Era[redacted]uble Gap Ferrite Head
[redacted]
Electronically Controlled DC Mo[redacted]
App[redacted] seconds with C-60 Tape
[redacted]
20H[redacted]Hz (30Hz–14kHz, ±3dB) 20Hz–16kHz (30Hz–15kHz, ±3dB) 20Hz–16kHz (30Hz–15kHz, ±3dB)
[redacted]
72d[redacted]mal) 65c[redacted]mal) 57d[redacted]mal)
Less than 0.6% (at 1kHz, 0dB, 3rd H.D. Normal Tape)
0.08[redacted]RMS)
[redacted]
77.5[redacted]k ohms
[redacted]
270mV (0dB)/3.9k ohms 0.2mW/8 ohms
AC [redacted]60Hz
21W[redacted]
17-5[redacted]5" x 10-9/16"
8.8 lbs

Super Woofer System LS-W9010 (LS-W900 + LS-S500)

Speakers	LS-W900	LS-S500
System	1-Way, 2-Speaker Super Woofer System	2-Way, 3-Speaker Satellite Speaker for Super Woofer System
Type	Dual Tuned Port Acoustic Bass Resonator	Acoustic Air-Suspension
Mounted Drivers		
Low Frequency Driver	8" Cone Type × 2	–
Mid-Frequency Driver	–	4-1/2" Polypropylene Cone Type × 2
High Frequency Driver	–	1" Dome Type
Enclosure	Floor Standing Type	Acoustic Air-Suspension Floor Standing Type
Maximum Input Power	180W/ch as Complete System	180W/ch as Complete System
Sensitivity	89dB/W/m	89dB/W/m
Rated Input Power	90W/ch as Complete System	90W/ch as Complete System
Frequency Response	30Hz – 20kHz as Complete System	30Hz – 20kHz as Complete System
Impedance	8 ohms	8 ohms
Dimensions (W × H × D)	9-13/16" × 23-1/4" × 14-5/8"	10-1/4" × 40-7/8" × 11"
Weight (Net)	28.6 lbs	15.4 lbs
Enclosure Finish	High Density Particle Board Laminated with Simulated Wood Grain Finish	High Density Particle Board Laminated with Simulated Wood Grain Finish

Super Woofer System LS-W7010 (LS-W700 + LS-S500)

Speakers	LS-W700	LS-S500
System	1-Way, 2-Speaker Super Woofer System	2-Way, 3-Speaker Satellite Speaker for Super Woofer System
Type	Dual Tuned Port Acoustic Bass Resonator	Acoustic Air-Suspension
Mounted Drivers		
Low Frequency Driver	6-1/2" Cone Type × 2	–
Mid-Frequency Driver	–	4-1/2" Polypropylene Cone Type × 2
High Frequency Driver	–	1" Dome Type
Enclosure	Floor Standing Type	Acoustic Air-Suspension Floor Standing Type
Maximum Input Power	140W/ch as Complete System	140W/ch as Complete System
Sensitivity	89dB/W/m	89dB/W/m
Rated Input Power	70W/ch as Complete System	70W/ch as Complete System
Frequency Response	30Hz – 20kHz as Complete System	30Hz – 20kHz as Complete System
Impedance	8 ohms	8 ohms
Dimensions (W × H × D)	16-1/8" × 8-1/4" × 15-3/16"	10-1/4" × 40-7/8" × 11"
Weight (Net)	22 lbs	15.4 lbs
Enclosure Finish	High Density Particle Board Laminated with Simulated Wood Grain Finish	High Density Particle Board Laminated with Simulated Wood Grain Finish

Super Woofer System LS-W5010 (LS-W900 + LS-S300)

Speakers	LS-W900	LS-S300
System	1-Way, 2-Speaker Super Woofer System	2-Way, 2-Speaker Satellite Speaker for Super Woofer System
Type	Dual Tuned Port Acoustic Bass Resonator	Acoustic Air-Suspension
Mounted Drivers		
Low Frequency Driver	8" Cone Type × 2	–
Mid-Frequency Driver	–	4-1/2" Polypropylene Type
High Frequency Driver	–	1" Dome Type
Enclosure	Floor Standing Type	Acoustic Air-Suspension Floor Standing Type
Maximum Input Power	180W/ch as Complete System	180W/ch as Complete System
Sensitivity	89dB/W/m	89dB/W/m
Rated Input Power	90W/ch as Complete System	90W/ch as Complete System
Frequency Response	30Hz – 20kHz as Complete System	30Hz – 20kHz as Complete System
Impedance	8 ohms	8 ohms
Dimensions (W × H × D)	9-13/16" × 23-1/4" × 14-5/8"	8-3/8" × 12-13/16" × 6-1/4"
Weight (Net)	28.6 lbs	6.6 lbs
Enclosure Finish	High Density Particle Board Laminated with Simulated Wood Grain Finish	High Density Particle Board Laminated with Simulated Wood Grain Finish

Super Woofer System LS-W3010 (LS-W700 + LS-S300)

Speakers	LS-W700	LS-S300
System	1-Way, 2-Speaker Super Woofer System	2-Way, 2-Speaker Satellite Speaker for Super Woofer System
Type	Dual Tuned Port Acoustic Bass Resonator	Acoustic Air-Suspension
Mounted Drivers		
Low Frequency Driver	6-1/2" Cone Type × 2	–
Mid-Frequency Driver	–	4-1/2" Polypropylene Cone Type
High Frequency Driver	–	1" Dome Type
Enclosure	Floor Standing Type	Acoustic Air-Suspension Floor Standing Type
Maximum Input Power	140W/ch as Complete System	140W/ch as Complete System
Sensitivity	89dB/W/m	89dB/W/m
Rated Input Power	70W/ch as Complete System	70W/ch as Complete System
Frequency Response	30Hz – 20kHz as Complete System	30Hz – 20kHz as Complete System
Impedance	8 ohms	8 ohms
Dimensions (W × H × D)	16-1/6" × 8-1/4" × 15-3/16"	8-3/8" × 12-13/16" × 6-1/4"
Weight (Net)	22 lbs	6.6 lbs
Enclosure Finish	High Density Particle Board Laminated with Simulated Wood Grain Finish	High Density Particle Board Laminated with Simulated Wood Grain Finish

Amplifiers	BASIC-M2A	BASIC-M1D	BASIC-C2	L-1000C	L-1000M
Power Output	220W per channel minimum RMS, both channels driven at 8 ohms from 20Hz—20kHz with no more than 0.004% THD	125W per channel minimum RMS, both channels driven at 8 ohms from 20Hz—20kHz with no more than 0.008% THD	—	—	130W per channel minimum RMS, both channels driven at 8 ohms from 20Hz—20kHz with no more than 0.006% THD
Total Harmonic Distortion					
AUX input to SPEAKER output					
(20Hz—20kHz)	0.004% at rated output power into 8 ohms	0.008% at rated output power into 8 ohms	—	—	0.006% (130W, 8 ohms)
(1kHz)	0.001% at rated output power into 8 ohms	—	—	—	0.0004% (130W, 8 ohms)
PHONO input to pre output	—	—	0.002% (20Hz—20kHz)	0.003% (20Hz—20kHz)	—
Intermodulation Distortion (60Hz : 7kHz=4 : 1)	0.004% at rated output power into 8 ohms	0.008% at rated output power into 8 ohms	—	—	—
Power Bandwidth	5Hz—100kHz at 0.04% THD	10Hz—75kHz at 0.08% THD	—	—	—
Frequency Response	DC—300kHz/+0dB, −3dB	1Hz—220kHz/+0dB, −3dB	1Hz—350kHz/+0dB, −3dB	5Hz—100kHz/+0dB, −3dB	5Hz—100kHz/+0dB, −3dB
Speaker Impedance	Accept 4 ohms to 16 ohms	Accept 4 ohms to 16 ohms	—	—	—
Input Sensitivity/Impedance					
PHONO (MM)	—	—	2.5mV/47k ohms, 100k ohms	2.5mV/47k ohms	—
TUNER/AUX/TAPE	—	—	150mV/47k ohms	150mV/47k ohms	—
MAIN IN	1V/47k ohms	1V/47k ohms	—	—	—
LINE, UNBALANCED	—	—	—	150mV/47k ohms	1.0V/47k ohms
LINE, BALANCED	—	—	—	300mV/50k ohms	2.0V/50k ohms
Signal-to-Noise Ratio (IHF-A)	— 120dB (MAIN IN)	— 120dB (MAIN IN)	94dB (PHONO MM, 5mV) 110dB (MAIN IN)	85dB (PHONO MM, 2.5mV) 100dB (UNBALANCED) 100dB (BALANCED)	115dB (UNBALANCED) 125dB (BALANCED)
Phono Maximum Input Level	—	—	200mV, (RMS) THD 0.002% at 1kHz	150mV (1kHz, 0.005%)	—
Output Level/Impedance	—	—	150mV/220 ohms (TAPE REC) 1V/100 ohms (PRE OUT)	150mV/220 ohms (REC) 1V/100 ohms (UNBALANCED) 2V/100 ohms (BALANCED)	—
Tone Control					
Bass (at 100Hz)	—	—	±10dB	±10dB	—
Treble (at 10kHz)	—	—	±10dB	±10dB	—
Loudness Control (at −30dB VOLUME Level)	—	—	+6dB at 100Hz	—	—
Subsonic Filter	—	—	12dB/oct. at 18Hz	—	—
Power Requirement	AC 120V, 60Hz	AC 120V, 60Hz	AC 120V, 60Hz	AC 120V, 60Hz	AC 120V, 60Hz
Power Consumption	6.9A	4.5A	12W	30W	4.2A
Dimensions (W×H×D)	17-5/16"×6-1/4"×14-11/16"	17-5/16"×5-11/16"×13-5/16"	17-5/16"×3-1/16"×12-5/8"	17-3/8"×3-13/16"×15-11/16"	17-3/8"×6-5/16"×17-9/16"
Weight (Net)	34.1 lbs	21.56 lbs	9.9 lbs	19.8 lbs	59.5 lbs

Tuners	KT-5020		L-1000T	
FM TUNER SECTION				
Usable Sensitivity	10.8dBf (0.95μV)		10.8dBf (0.95μV)	
50dB Quieting Sensitivity				
(Mono)	16.2dBf (1.8μV)		16.2dBf (1.8μV)	
(Stereo)	38.8dBf (24.0μV)		38.8dBf (24.0μV, distance)	
Signal-to-Noise Ratio				
(Mono)	88dB at 85dBf, —		93dB at 85dBf, 91dB at 65dBf	
(Stereo)	82dB at 85dBf, —		86dB at 85dBf, 76dB at 65dBf	
Total Harmonic Distortion (WIDE)				
Mono 1,000Hz	0.004%		0.004%	
50—10,000Hz	0.1%		0.009%	
Stereo 1,000Hz	0.06%		0.008%	
50—10,000Hz	0.12%		0.04%	
Capture Ratio	1.0dB (WIDE)	2.5dB (NARROW)	1.0dB (WIDE) 3.0dB (NARROW)	2.5dB (NORMAL)
Alternate Channel Selectivity ±400kHz	60dB	90dB	73dB (WIDE) 75dB (NARROW, ±300kHz)	80dB (NORMAL)
Stereo Separation 1,000Hz	55dB		70dB	
50—10,000Hz	—		60dB	
Frequency Response	20Hz—15kHz, ±0.5dB		20Hz—15kHz, ±0.5dB	
Spurious Rejection Ratio	105dB		110dB	
IF Rejection Ratio	110dB		110dB	
AM Suppression Ratio	76dB		80dB	
Sub Carrier Suppression Ratio	70dB		72dB	
Antenna Impedance	75 ohms unbalanced & 300 ohms balanced		75 ohms unbalanced (A&B)	
FM Frequency Range	87.5MHz to 108MHz		87.5MHz to 108MHz	
Output Level/Impedance	600mV, 3.3k ohms		800mV, 100 ohms (fixed)	
AM TUNER SECTION				
Usable Sensitivity	10μV		—	
Signal-to-Noise Ratio	52dB		—	
Total Harmonic Distortion	0.3%		—	
Image Rejection	40dB		—	
Selectivity	30dB		—	
Output Level/Impedance (400Hz 30% Mod.)	180mV, 3.3k ohms		—	
GENERAL				
Power Requirement	AC 120V, 60Hz		AC 120V, 60Hz	
Power Consumption	15W		35W	
Dimensions (W×H×D)	17-5/16"×3-7/8"×12-1/2"		17-5/16"×3-13/16"×16-1/8"	
Weight (Net)	7.9 lbs		23.1 lbs	

Kenwood follows a policy of continuous advancement in development
For this reason specifications may be changed without notice.

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