

KR-9050/KR-8050/KR-7050/KR-6050/KR-5010/KR-4010/KR-3010



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The receiver of the future can be yours today!

Now, perhaps for the first time in audio history, the receiver can be considered a true high fidelity component. By incorporating advanced technology developed exclusively by Kenwood engineers, the New Receivers are able to reproduce music from any source record, FM broadcast, tape - with a quality of sound that equals that of Kenwood's best comparable separate amplifiers and tuners. Such superb sound quality is now a reality with the New Kenwood Receivers. Sophisticated circuitry, such as High Speed amplifier design, true DC amplification and complementary symmetry are used depending on design to form the basis for extremely accurate transient response and clear sound reproduction through the audible range. In tuner sections, you'll find

such exciting features as two selectable IF bandwidths, MPX "clean" pilot canceller, FM stereo sensitivity threshold selector — and even, in what could be the most outstanding receiver in the world, the KR-8050 — the revolutionary Pulse Count FM detector. Why is this circuitry exciting? Because, collectively, it all adds up to one thing: quality in music. From each input to your speakers, Kenwood technology makes certain the signal is reproduced with supreme accuracy, and with low noise and distortion levels that owners of "separates" cannot avoid admiring. These are some of the secrets of the New Receivers. Each one, in its price, power and performance category, is designed throughout to give you the greatest musical experience you've ever had.

Music lives!

In the beginning is the music. It is enclosed in a signal that consists of varying bursts of sonic energy, sometimes at only one frequency, sometimes encompassing a very wide range of frequencies. Each sonic burst, no matter how small, is called a "transient". It is dynamic. In the past, a receiver's ability to reproduce music was expressed by static measurements (frequency response, THD, S/N ratio, etc.) using sine waves. But after many years of research, Kenwood engineers became convinced that these static

measurements do not represent true music reproduction, and they set about proving it. You can prove it for yourself, too. Compare a Kenwood receiver with any similar one. They simply don't sound the same. Their static specifications may look alike, but when the music comes through, how much more alive and natural and vibrant the Kenwood sounds! There is no magic involved. It is the result of the Kenwood engineer's dedication to perfect music reproduction. Let's see, briefly, how this has been achieved.

Transient Response. How much of the music do you really hear?





Competitor's amplifier with "ringing"

amplifier circuitry have shown that <u>transient intermodulation</u> distortion (TIM) does far more to degrade the purity of the music than previously supposed. It is



Kenwood high speed amplifier response



Competitor's amplifier with "overshoot"

related to the speed with which an amplifier (or amplifier section of a receiver) can reproduce a sharp, heavy burst of music. When this kind of signal appears the amplifier must have the capability to provide a sudden change in voltage dictated by the musical signal. The conventional "slow" amplifier cannot do it quickly enough. The result is a lack of clarity, or even worse, a loss of some of the "signal" music enveloped in the large dynamic signal. Kenwood engineers found that, even though this distortion originally occurs above the range of frequencies we can hear, it can seriously affect the audible range. It intermodulates with audible frequencies, and is thus termed TIM.

Some important things you should know about Slew Rate and Rise Time

There are two specifications related to the performance of transient response: slew rate and rise time. Most often these important specifications are not given accurately enough. Slew rate shows the



voltage rate of change within a fixed time limit. It indicates how fast the amplifier can deliver rapid changes in power. But the key to slew rate is that it must be measured at maximum output, because this is where clipping generates undesirable distortion. This phenomenon is called "slew rate limiting" - a limit of speed. Think of a car with a top speed of 40 mph trying to enter a freeway where the traffic is moving steadily at 55 mph. The distortion in speed that occurs is similar to what happens in amplifiers when slew rate limiting occurs. It is at this moment that the output voltage no longer follows the input voltage faithfully. Rise time shows the time it takes for the output to rise from 10% to 90% of maximum. Here, many manufacturers tell only half the story. Because amplifiers generally turn off much slower than they turn on, the "fall" time is rarely given. Measurements must include fall time since every signal consists of positive and negative directions. To show the positive cycle only is like showing only half of a picture. All Kenwood receiver amplifier sections that employ high speed circuitry are specified for maximum slew rate, and both rise and fall times. In this way, you can see how Kenwood receivers can respond faithfully and accurately to all the transient dictates of the music. With high speed circuitry, you lose nothing. Listen to a Kenwood High Speed receiver and you can hear the future of high fidelity — now!

High Speed and damping factor

All speaker cones have a tendency to vibrate even after the applied signal has been cut off. A very important task of the amplifier section is to act as a dynamic brake to this undesirable movement. The degree of this speaker control is called damping factor, usually specified at mid-frequency. However, it is not generally known that damping factor does not remain constant across the frequency range. It begins to deteriorate rapidly at the first sign of slew rate limiting. Thus, here is another fact to add to the long list of Kenwood use-related specifications. Thanks to High Speed circuitry and the Kenwood Dynamic Damping Factor theory, Kenwood receivers show a flat, constant damping factor right through the audible frequency range and even beyond.



Flat, constant damping factor over a wide range keeps a tight rein on speaker cone movement.

Want to hear incredibly clear music from your records? Look for realistic phono signal-to-noise ratio

The New Kenwood Receivers can give you so much in terms of clean, clear music reproduction. Take your favorite recording, play

it on the best turntable with the best speakers, and the Kenwood receiver will reproduce it with virtually all the dynamic range the range between very soft and very loud music - that the recording engineers intended you to hear. The key to this is the phono signal-to-noise ratio, which tells vou how much noise has been suppressed below the signal level. The important points we'd like you to know here are, first, that S/N ratios of Kenwood receivers are measured from the phono input, not just the AUX input which can produce a higher number. Second, the S/N ratios of Kenwood receivers are referenced to a 2.5-millivolt phono input sensitivity. You can still find the phono S/N ratio referenced to an input sensitivity as high as 10 millivolts. But this figure is unrealistic. You will find that even our least expensive receiver boasts a signal-to-noise ratio of 81 dB (at 2.5 mV), an excellent performance rating that shows you will be able to enjoy your records to the fullest extent.



Low-noise preamplifier design means high quality reproduction from records.

Pulse Count FM detector: broadcast studio quality comes to your home

For the first time in audio history, the quality of music transmitted by the broadcast studio can be reproduced by a receiver, the incomparable KR-8050. True, the Pulse Count technique is too expensive to be used for other New Receivers, but you can be sure that it has helped us to improve tuner design in every model. While sensitivity and selectivity remain important indications of broadcast



number of precision pulses per unit time.



Pulse Count IC yields an FM signal almost identical to original broadcast.

reception quality, Kenwood engineers have improved the previously weak link in tuners — the detector. This circuit extracts the original audio signal out of the signal that has been processed in earlier stages. Conventional systems used to demodulate the FM signal have two principal disadvantages. They are fundamentally prone to both harmonic distortion and noise. This is because their processes use non-linear devices. The Pulse Count technique has been painstakingly developed by Kenwood engineers from a professional laboratory-use digital process where extreme linearity is of paramount importance. As a result, it is virtually noise-free, and it is both theoretically and practically linear throughout its operation. This unique digital process looks at each individual wave and converts it into a pulse of uniform strength and duration -a precision energy packet for each cycle. These energy-packets are counted and averaged over a given time interval, and the output is thereby made precisely proportional to the pulse count. There is no distortion

because each pulse signal is regular and orderly. And the result is a demodulated FM signal almost identical to that of the broadcast studio. A remarkable achievement by any standards, the Pulse Count technique shows how persistent dedication combined with hard work can bring tangible benefits to the music listener.

Pilot Canceller circuit reduces FM beat distortion

All FM radio stations broadcast stereo programs by means of a multiplex (MPX) signal. This includes the main carrier. the subcarrier which is 38 kHz removed from the main carrier, and a pilot signal of half the subcarrier frequency, at 19 kHz. This pilot signal is used to recover the stereo broadcast in the multiplex decoder circuit. Since this is the only useful purpose served by the pilot signal, it must be eliminated from the final audio signal. If the pilot signal is allowed to come through, it may "beat" with tape deck bias frequency or local oscillator frequency to interfere with FM broadcast reception. Conventional tuners employ some type of low pass filter to remove the pilot signal. The problem with this approach is that part of the upper range of the music is filtered out along with the 19 kHz pilot. Our Pilot Canceller circuit is completely different because it eliminates the 19 kHz signal by applying an identical reverse-phase signal. which leaves the audible frequen-Thus cies entirely unaffected. frequency response extends to 15 kHz, -0.5dB, compared with the usual -1 or 2 dB.



Carrier leakage (19kHz pilot signal and 38kHz sub carrier) is eliminated completely by combined Pilot Canceller circuit and steep-slope lowpass filters.

IF band selector like two receivers in one

The tuner section of most receivers has a fixed IF bandwidth which determines its selectivity and distortion characteristics. A narrow IF bandwidth keeps nearby stations from interfering with the one you want, thereby increasing the tuner's "selectivity". On the other hand, a wider bandwidth is more desirable if you don't need high selectivity when there are no nearby stations to





Narrow band IF selection improves selectivity to reduce adjacent broadcast interference. A. Narrow B. Wide

interfere. A wide IF band naturally gives you less distortion, so it is desirable if your FM dial is not too crowded, or if it is uncrowded near some preferred stations. However, Kenwood has solved this either/or compromise by providing an IF band selector. Thus, you can switch to the most ideal bandwidth according to the conditions in your area. Separate wide and narrow IF bands give you the best of both worlds.



Selectable IF bandwidths provide optimum reception quality even in difficult conditions.

FM stereo sensitivity selector: two thresholds

Now you can decide for yourself when you want the receiver to reproduce broadcasts in stereo or mono in order to obtain optimum sound quality. With other receivers having only "stereo/mono" switches, the noise threshold below which mono reproduction begins is preset at the factory. If this threshold does not correspond with the signal-to-noise ratio that you consider acceptable in a stereo program, you have to manually switch to the mono position to reduce the noise. Kenwood's exclusive stereo sensitivity selector lets you choose the signal-to-noise ratio which determines mono or stereo reproduction. You can set the sensitivity for either 40 dB or 60 dB S/N. For example, at 60 dB (switch position 2), you will hear stereo only if a 60 dB or higher S/N ratio is obtained. If it is lower, the receiver will automatically switch to mono.

High S/N ratio with low distortion for clear FM listening

From the FM tuner's front end through the IF stage, detector stage, demodulator, and stereo MPX decoder stage, right up to the point where amplifier circuitry takes over the audio signal, Kenwood receivers feature only the most reliable, proven circuitry. The specifications for FM signalto-noise ratio and distortion directly reflect the clear sound quality that you can actually hear. Outstanding among the circuit techniques and components featured in Kenwood's New Receivers are our dual-gate MOS FET front end; precision limiter with phase-linear ceramic filters in the IF stage; advanced, carefully designed quadrature detector circuitry; and PLL MPX stereo decoding circuitry with our original Pilot Canceller.



Two-level stereo sensitivity selector lets you choose the degree of acceptable noise for any FM stereo broadcast.

Extra large tuning meters and longer dial scales

Not only is it easier to find the FM station you desire and tune it in with perfect accuracy based on accurate meter readings and highly legible extra-long dial scales, but these also make clear the exceptional stability of the FM tuner circuitry itself. By looking at our larger tuning meters, particularly FM center tuning meters, you can tell at a glance whether the tuner has drifted away from the point of optimum reception. Small tuning meters are not merely difficult to read: they may also obscure FM drift problems.



Easy-to-read, accurate tuning meters shown actual size.





A receiver designed to please the most critical audiophile

At the top of Kenwood's New Receiver line stands the KR-9050. It's a powerful receiver with great flexibility. Rated output is no less than 200 W + 200 W, both channels driven into 8 ohms, from 20 Hz to 20 kHz, with no more than 0.02% THD. Driven by the High Speed amplifier and provided with the ultimate in control flexibility, the KR-9050 should easily become the Receiver Of The Year.



Spectral analyzer shows very low total harmonic distortion from 2nd to 10th order harmonics, excluding residual noise.

High Speed DC amplification makes the music come alive

With a slew rate of $\pm 110 \text{ V}/\mu\text{s}$ and

a rise time of $0.95 \ \mu s$, the KR-9050 offers superb high speed transient response, with negligible transient intermodulation distortion. No matter how dynamic a



music signal may be, you'll never be bothered with undesirable distortion problems. DC amplification, with complete elimination of phase-altering coupling capacitors from power amp circuit, from input to the speaker terminals, assures you of linear frequency response all the way from DC (0 Hz) to 280,000 Hz (+0, -3 dB). Naturally, this extraordinary frequency response extends far beyond audibility. But that's what creates the outstanding quality of the range of sound you can hear. Now you can hear all the subtle nuances of the music and instruments and listen to music free of the low frequency phase shift that degrades the sound quality in other receivers.

Dual Power Supply system eliminates dynamic crosstalk distortion

Dynamic crosstalk distortion is usually created when one of the stereo channels consumes high power to handle a large transient signal when there is only one power supply. Such transient signals can easily draw so much power that the other stereo channel is affected, if only temporarily. Our solution is simple — a separate and independent power supply for each stereo channel. The KR-9050 employs a toroidal



Kenwood's Dual Power Supply eliminates transient crosstalk distortion.



core transformer with dual windings plus huge electrolytic capacitors, to assure large reserves of power whenever it is needed.

Reproducing everything on your records

A signal-to-noise ratio of 85 dB with a small phono input signal as low as 2.5 millivolts means that circuit noise will never affect the sonic purity of phono reproduction. Phono frequency response is perfectly flat: 20 Hz - 20 kHz, \pm 0.2 dB, thanks to the precision equalizer circuit that provides the exact RIAA curve the recording engineers intended for your records.

Professional power and tuning meters, peak output LED indicators

Want to know exactly how much power the KR-9050 is producing into your speakers? Take a look at the two giant power meters. If the power delivered to the speakers reaches clipping levels, these meters and the bright-red peak indicator LED's will inform you. For FM tuning you have a large center tuning meter along with a signal strength meter that also



Professional type peak power metering system.

serves for AM tuning.

Touch-sensor servo-lock tuning

Kenwood's touch-sensor FM Lock system actually turns on and off with the touch of your hand on the tuning knob. As you turn the tuning knob, you get instant response. When you have approximately located the station, release the knob and the servo-lock system takes over, locating the station to the point of least distortion. To assist, the LED first glows dimly, then brightly when the station is locked. The FM Lock system may be deactivated by its OFF switch.



Servo-lock tuning automatically fine-tunes to point of minimum distortion after touch-sensor knob is released.

Two-step stereo sensitivity selector

An exceptionally convenient feature that lets you be the judge of stereo sound quality. You can choose between two S/N ratio thresholds above which FM broadcasts will be reproduced in stereo.

High quality circuitry: Pilot Canceller, PLL MPX, IF Wide/Narrow band selector

The KR-9050 incorporates all the useful features and advanced circuitry that bring quality audio reproduction to stereo broadcasts. The dual MOS FET front end assures extremely high sensitivity to pick up weak stations with minimum noise. With the IF selector you can choose the Narrow band position if your FM dial is crowded, or Wide band for less distortion. PLL MPX stereo decoder circuitry employs Kenwood's pilot signal canceller to obtain wide frequency response.

Triple tone controls with 50 Hz bass boost switch

Now you can tailor reproduced frequency response as you like to compensate for room acoustics, and tonearm or speaker system resonances. Besides the treble, mid-range, and bass controls, a 50 Hz bass boost compensates for poor low range response.



Flexible tone control system lets you tailor the sound.

Flexibility

Sound Injection

Mix live sound with any program source, balancing them with Mix Level Control. Special mix/dub circuitry.

- Audio attenuator
- A, B, C speaker selector
- Two tape monitors and tapethrough circuit
- Volume control with exact dB indication
- MPX filter
- Subsonic and High filters
- LED indicators

For input selector, IF Narrow band, stereo, and speaker selector.

KR-8050



This could be the most advanced receiver in the world

In the KR-8050 you'll discover circuitry features that are not available in any other receiver. For example, High Speed DC coupled circuitry, and the revolutionary Pulse Count FM detector. There's lots of power (150 watts per channel into 8 ohms, with POWER BOOST) delivered with very low distortion (no more than 0.02% THD) across the audio spectrum. And with the KR-8050, you're finally going to hear FM broadcasts as good as the quality from records.



Spectral analyzer shows very low total harmonic distortion from 2nd to 10th order harmonics, excluding residual noise.

High Speed DC amplification brings accurate sound reproduction

As outlined earlier, Kenwooddeveloped high speed circuitry is one of the most significant developments in audio for many years. With a slew rate of $\pm 200 \text{ V}/\mu \text{ s}$ and rise time of 0.9 μ s the KR-8050 is capable of responding to the most dynamic and complex music signals accurately. With high speed circuitry, no music is lost. There is only total tonal clarity, and a 3-dimensional aspect to sound reproduction that has never before been achieved by any receiver. Add to this, Kenwood's DC Coupled circuitry that doubles as subsonic filter. By simplifying power amplifier circuitry signal flow, time-delaying coupling capacitors have been eliminated from AUX input to speaker terminals, and low frequency phase distortion problems have vanished.

Power Boost switch raises power output

120 watts per channel rated output, from 20 Hz to 20 kHz into 8 ohms, both channels driven, is more than enough for all normal use. But the KR-8050 has that extra punch for when you really need it — like, you're throwing a party! Kenwood's Power Boost switch instantly raises output power to 150 W (into 8 ohms), without in any way degrading other areas of audio-performance.



Switch to Kenwood's DC Coupled power circuitry for superb sound quality down to the low est audible level.



cords.

Professional type meters

Two large power meters above the tuning scale tell you at a glance how many watts the KT-8050 is delivering to your speaker system, so it's easy to tell when dynamic peaks exceed the power handling capacity of your speaker system. Both FM and AM tuning are more accurate thanks to the large center tuning and signal strength meters that respond instantly to the broadcast signals being received.

Pulse Count FM detector brings broadcast studio sound quality

Kenwood's Pulse Count detector creates a new era in FM receiver sound quality. This revolutionary circuitry is so superior to conventional discriminators and ratio detectors that now, for the first time ever, a receiver can provide an audio quality that is as good as the broadcast studio's monitor stereo decoder section utilizes phase-lock-loop (PLL) circuitry and the Kenwood pilot canceller circuit so that you can tape FM stereo broadcasts without "beat" distortion, and obtain wide frequency response.

Triple tone controls with 50 Hz bass boost

There's all the acoustics control you'll need in the KR-8050's triple tone controls, plus a switch that boosts bass below 50 Hz for extra punch when you need it.



Flexible tone control system lets you tailor the sound.



Extra power at the flip of a switch.

Pure record reproduction

A high signal-to-noise ratio is essential for quality reproduction of records, and the 85 dB S/N (referenced to a 2.5 mV input) is a good indication of the extremely high quality of sound you can expect when playing your records. The key to the KR-8050's incredibly low circuit noise is our FET ICL and DC configuration with SEPP output stage, for which we select only the highest quality components available. RIAA equalization is accurate throughout the audio spectrum, so you know you're hearing exactly the response intended for your re-

PULSE COUNT DETECTOR

tuner. Synthesizer tuning systems, digital readout, quartz locked servo systems and other related gadgetry can give you nothing in terms of improved audio-quality compared to the Pulse Count detector. Kenwood's KR-8050 is the first receiver to employ this revolutionary detector. And it's the first to give you FM broadcast reproduction with the same sound quality as other hi-fi sources.

Some of the advanced circuitry of the KR-8050

Naturally, this incomparable receiver exists as the sum of its parts. Besides high speed and the Pulse Count technique, it incorporates a "front end" (RF stage) that uses dual-gate MOS FETs for high sensitivity without overload distortion from strong nearby stations. The multiplex (MPX)

Flexibility

- Microphone mixing
- A and B speaker selector
- A and B tape monitor
- B to A tape copying
- Wide/Narrow IF bandwidth selector
- FM sensitivity threshold selector
- Protection lamp

Lights up till circuits have stabilized or to warn of overload.

- DC Coupled switch
- Functions as subsonic filter.
- High filter
- Loudness control
- LED indicators
- For inputs, Narrow IF band.

Volume control

With exact dB indication.



Sonic quality that results from some of the most advanced audio technology available today

If the features and the power output of the KR-8050 or KR-9050 seem too much for you, as far as sound quality is concerned, the KR-7050 provides exactly the same. Its power output of 80 W + 80 W, both channels driven into 8 ohms, 20 Hz to 20,000 Hz, is delivered with low total harmonic distortion of 0.02%. And the control features provide maximum freedom in controlling the sound, without in any way degrading sound quality.



Spectral analyzer shows very low total harmonic distortion from 2nd to 10th order harmonics, excluding residual noise.

Fast, accurate, authentic music reproduction

The Kenwood-developed DC coupled High Speed amplifier circuitry eliminates coupling capacitors in the signal path from AUX input to speaker terminals and provides outstanding tonal quality from the lowest to the highest frequencies you can hear. Fast transient response, with slew rate of $\pm 200 \text{ V}/\mu\text{s}$ and rise time of 0.9 μs , is a sufficient indication that every instrument is reproduced clearly and distinctly, with a tonal balance that is the next best thing to live music.

85 dB phono S/N ratio provides super-clean music from records

When you play your records, noise which deteriorates music reproduction will not be coming from the KR-7050's phono equalizer amplifier, because the signal-tonoise ratio is an outstanding 85 dB, using a realistic 2.5 millivolts phono input sensitivity. Advanced equalizer amplifier design uses FET ICL and DC configuration circuitry with SEPP output.

Dual MOS FET front end, IF band selector, PLL MPX with Pilot Canceller circuit

A multitude of sophisticated circuitry such as outlined above is the reason for the exceptionally clean, clear FM broadcast quality that you will hear from the KR-7050. The IF band selector permits you to choose between higher selectivity or lower distortion so that you can obtain the best reception even under difficult conditions. A vital consideration when taping FM stereo broadcasts is the Pilot Canceller circuit that reduces "beat" distortion and obtains wider frequency response.

Triple tone controls with 5-step turnover in bass and treble

You can vary turnover frequencies at five positions each in both the bass and treble ranges to obtain exactly the frequency response you need: 80, 140, 250, 450, 800 Hz for bass; 800 Hz, 1.4, 2.5, 4.5, 8 kHz for treble.



Flexible tone control system with ten turnover frequencies provides precise acoustic tailoring of response.

Flexibility

DC Coupled switch functions as subsonic filter

Twin power, tuning meters
Two tape inputs with monitor
B to A tape transfer
High filter
Mode selector
Loudness control
Fast-acting LED input selector indicator
Microphone input
Front panel 25 μs FM deemphasis switch
For FM Dolby* broadcasts. 50/75 μs deemphasis switch on rear panel.
Volume control With exact dB indication.

KR-6050



Exceptional performance that is meaningful to you

Receiver performance measured only by power and one or two outstanding specifications is meaningless. The KR-6050 provides high output and conforms to use-related specifications - but above all, it proves itself by its outstanding sound quality. The 60W + 60W (both channels driven from 20 Hz to 20 kHz into 8 ohms) is delivered with very low total harmonic distortion - only 0.02%. This means even a very high volume level will produce no audible distortion anywhere in the audio spectrum. If sound quality is your first priority in a receiver, you won't find any better than that of the KR-6050.



Spectral analyzer shows very low total harmonic distortion from 2nd to 10th order harmonics, excluding residual noise.

High Speed DC amplification gives you authentic music

After years of research relating to amplifiers, Kenwood developed the High Speed DC receiver. It is capable of responding to every dynamic music signal with an accuracy that is unique in receivers. Moreover, with coupling capacitors eliminated from the signal path, you can hear every note and instrument clearly defined and positioned. Other comparable receivers may look similar in performance, but just listen to the difference in musical definition!

82 dB signal-to-noise ratio for quality record reproduction

A high phono signal-to-noise ratio indicates how low a noise level is achieved in the phono equalizer amplifier, and how clean your records are going to sound. The KR-6050's S/N ratio of 84 dB is referenced to a realistic 2.5 mV phono input. Use a 10 mV input reference, and the S/N ratio is 96 dB! And with less than ± 0.2 dB RIAA deviation, frequency response is a precise replica from one end of the audio spectrum to the other. Advanced equalizer amplifier design utilizes FET ICL input and SEPP output.

Two power meters and two tuning meters

Twin power meters tell you the precise power level delivered to the speakers. You can check signal peaks to avoid clipping distortion, and check channel balance. There's also a center tuning meter for FM, and a signal strength meter for FM and AM.



Professional type peak power meters shown actual size.

Advanced circuitry is built-in throughout the KR-6050: dual MOS FET, IF Selector, PLL MPX Pilot Canceller

High sensitivity, low distortion, high S/N, and extended frequency response all reflect Kenwood's advanced FM tuner circuitry. The IF Wide/Narrow band selector optimizes reception even under difficult conditions. The Pilot Canceller reduces "beat" distortion when taping FM stereo broadcasts and obtains frequency response extending to 15 kHz, -0.5 dB.

Flexibility

- Bass, treble tone controls with center defeat
- Two tape monitors
- B to A tape transfer
- A, B speaker selector
- FM muting switch
- FM de-emphasis selector

Rear panel selector for 25/50/75 μ s.

Volume control

With 41 click-stops.

KR-5010



Music with realism from the KR-5010

This stereo receiver with DC amplifier design provides astonishingly clear music reproduction even at the lowest audible levels. Rated output of 45 W + 45 W(both channels driven into 8 ohms from 20 Hz to 20 kHz) is delivered with only 0.03% THD. Total harmonic distortion and signal-to-noise ratio are among the highest in the class of receiver. You can therefore enjoy a sound quality that will amaze everybody.



Spectral analyzer shows very low total harmonic distortion from 2nd to 10th order harmonics, excluding residual noise.

Direct Current amplification means clear music

DC amplifier circuitry brings you a frequency response that extends below the lowest sounds you can hear, without phase shift distortion. You will be amazed at the way you can hear each note clearly, with each instrument positioned exactly as it is on stage.



DC stereo power amplification based on three precision integrated circuit blocks.

Kenwood's tuner section assures quality broadcast reception

Exceptional reception quality is provided by the tuner section of this receiver. And the IF band selector gives you optimum reception quality even in crowded urban areas — it's like having two tuner sections.



Selectable IF band widths provides optimum reception quality even in difficult conditions. Narrow band improves selectivity. Wide band produces less distortion.



Narrow band IF selection improves selectivity to reduce adjacent broadcast interference. A. Narrow B. Wide

82 dB phono S/N with an input as low as 2.5mV is almost unbelievable!

Even many separate integrated amplifiers fail to achieve such a low noise level for phono. For you, it means outstanding quality from your records, the result of using a discrete, direct-coupled, three-stage amplifier.

Twin power meters and tuning meter

These three large meters tell you everything about power output levels and channel balance, and help you tune-in both AM and FM stations quickly and accurately.

Flexibility

- Two tape monitors
- B to A tape transfer
- Bass, treble tone controls
- High filter
- A, B speaker selector
- Loudness control
- FM Muting with FM Stereo selector.
- Volume control with 41 clickstop positions



Advanced design brings tonal quality

The complementary - symmetry amplifier design of the KR-3010 results in clean, clear sound reproduction even at the highest audible frequencies. Power output is ample: 27 W + 27 W (both channels driven into 8 ohms from 20 Hz to 20 kHz) with less than 0.05% total harmonic distortion. Both distortion and signal-to-noise ratio are outstanding in this class of receiver - resulting in an equally outstanding sound quality whether you listen to FM broadcasts or records. A full range of controls complements the fine circuitry.



Spectral analyzer shows very low total harmonic distortion from 2nd to 10th order harmonics, excluding residual noise.

Clean, clear sound reproduction at all frequencies

Kenwood's technical expertise in amplifier design results in a sound quality that will astonish you with its distinct definition of every note and instrument — even at the lowest frequencies you can hear.

A quality FM tuner section

Kenwood engineers have designed a high performance tuner section for the KR-3010. It incorporates such advanced circuitry as a junction FET in the front end input, 4-element linear phase ceramic IF filter, low distortion quadrature FM detector, and PLL multiplex stereo decoder. These design features provide high quality FM broadcast reception even in difficult reception conditions.

Sound quality from records, too

Probably no other receiver in a similar category provides such clear music reproduction from records as the KR-3010. Its in-



Low noise levels obtained by preamplifier give excellent sound reproduction quality from records.

credibly high 81 dB phono signalto-noise ratio is achieved with a realistic phono input of 2.5 millivolts, which provides wide dynamic range.

Rugged speaker cable connectors

Specially designed speaker cable connectors hold the cable firmly in place to prevent any possible damage or signal loss — another indication of the meticulous engineering to be found in every Kenwood audio component.



Flexibility

• FM Muting with input selector

- Large accurate tuning meter
- Long, accurate dial scale
- A and B tape inputs with monitoring
- B to A tape transfer
- Bass, treble tone controls
- A, B speaker selector
- Loudness control
- Volume control with 41 clickstop positions
- Balance control





Match your components carefully

Kenwood provides many opportunities for you to build and expand your hi-fi system in the most effective and attractive way, and without making costly mistakes. Many Kenwood audio components are designed to match each other not only in performance criteria, but also in styling

and dimensions. An example is shown here: the KR-5010 matched with the KX-760 cassette deck. This deck can also be ideally combined with the KR-4010, KR-3010 The KX-760 is a cassette deck that features excellent performance ratings combined with a full complement of all the controls necessary for you to record and play back tapes with excellent sound quality. A built-in Dolby* noise reduction circuit is included, as well as an MPX filter, independent bias and equalization selectors, mircophone mixing facility and an audio timer stand-by mechanism.

SPECIFICATIONS OF KX-760 CASSETTE DECK

Туре	Front Loading Stereo Cassette	Additional FeaturesDolby Noise Reduction System
	Deck with Dolby N.R. System	with LED Indicator,
Track System	4-Track, 2-Channel Stereo/Mono	Three-Position Equalization
	Record/Playback System	Selector (Normal-Chrome-Reserv
Tape Speeds	4.76cm/sec. (1-7/8 ips)	Three-Position Bias Selector
Heads	Hard Permalloy Record/Playback	(Normal-Chrome-Reserve),
	Head x 1	Memory Index with LED Indica
	Ferrite Erase Head x 1	Line/Mic Mixing,
Motor	. Electronically Controlled	Full Auto Shut-off Mechanism
	DC Motor	in All Modes,
Fast Winding Time	Approx 85 Seconds with	Headphone Jack
	C-60 Tape	Power Requirements AC120V, 60Hz
Frequency Response	30Hz to 16,000Hz	Power Consumption 12.0 watts
	CrO2 Tape	Dimensions
	30Hz to 16,000Hz	H 139mm (5-1/2'')
	Ferri-Chrome Tape	D 297mm (11-11/16″)
Signal to Noise Ratio	· · · · · ·	Weight
Dolby ON (Over 5kHz)	64dB (CrO2)	* Trademark of Dolby Laboratories.
Dolby OFF	54dB (CrO2)	
Wow & Flutter	0.05% (WRMS)	

SPECIFICATIONS(Amplifier Section)

	KR-9050	KR-8050	KR-7050
Power Output	200 watts per channel, both channels driven at 8 ohms from 20Hz to 20kHz with no more than 0.02% total harmonic distortion.	150 watts per channel *(POWER BOOST ON) or 120 watts per channel (POWER BOOST OFF), both channels driven at 8 ohms from 20Hz to 20kHz with no more than 0.02% total harmonic distortion.	80 watts per channel, both channels driven at 8 ohms from 20Hz to 20kHz with no more than 0.02% total harmonic distortion.
Both Channels Driven into 8 ohms at 1kHz into 4 ohms at 1kHz Dynamic Power Output Total Harmonic Distortion	210W + 210W 250W + 250W 600W at 8 ohms	*170W + 170W 130W + 130W 550W at 8 ohms	85W + 85W 100W + 100W 360W at 4 ohms
(20Hz to 20kHz from AUX) rated power into 8 ohms 1W power into 8 ohms Intermodulation Distortion	0.02% 0.007%	0.02% 0.007%	0.02% 0.007%
(60H2: 7kH2=4:1 SMPTE) rated power into 8 ohms 1W power into 8 ohms Slew Rate Rise Time Frequency Response Signal to Noise Ratio	0.0045% 0.006% ±110V/μsec	0.005% 0.006% ±200V/μ sec 0.9μ sec	0.007% 0.009% ±200V/μ sec 0.9μ sec
(A weighted) Damping Factor (20-20kHz at 8 ohms) Input Sensitivity/Impedance	50 1V/50k ohms	85	100
Input Sensitivity/Impedance PHONO 1, 2 AUX & TAPE MIC	2.5mV/50k ohms	2.5mV/50k ohms 200mV/50k ohms .2.2mV/50k ohms	2.5mV/50k ohms 200mV/50k ohms 3.6mV/50k ohms
AUX & TAPE	85dB for 2.5mV input 91dB for 5.0mV input 110dB for 200mV input 74dB for 2.2mV input	85dB for 2.5mV input 91dB for 5.0mV input 108dB for 200mV input 74dB for 2.2mV input	.85dB for 2.5mV input 91dB for 5.0mV input 108dB for 200mV input 72dB for 2.2mV input
Maximum Phono Input Level at 1kHz Frequency Response PHONO BLAA	260mV (rms), THD 0.02%	. 220mV (rms), THD 0.02%	200mV (rms), THD 0.02%
Standard Curve	20Hz to 20kHz ±0.2dB 5Hz to 210kHz –3dB	20Hz to 20kHz ±0.2dB DC to 320kHz –3dB	20Hz to 20kHz ±0.2dB DC to 320kHz –3dB
Bass	±12dB at 100Hz	. ±12dB at 100Hz	± 12dB at 50Hz
Treble	±10dB at 800Hz	. ±86B at 800Hz	±10dB at 800Hz ±12dB at 15kHz
(Vol. –30dB) 1 2 Subsonic Filter	+8dB at 100Hz +5dB at 100Hz 18Hz 6dB/oct	. +10dB at 100Hz	+10dB at 100Hz
(DC Coupled OFF) High Filter	5kHz 6dB/oct	. 5kHz 6dB/oct	5kHz 6dB/oct
TAPE REC Out (Pin) TAPE REC Out (DIN)	200mV/300 ohms 30mV/80k ohms	200mV/300 ohms	200mV/300 ohms 30mV/80k ohms





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KR-8050

FM TUNER SECTION	KR-6050	KR-5010	KR-4010	KR-3010
Usable Sensitivity 50dB Quieting Sensitivity	10.3dBf (1.8µV)	10.3dBf (1.8μV)	10.3dBf (1.8µV)	10.8dBf (1.9µV)
Mono Stereo Signal to Noise Ratio	16.1dBf (3.5μV) 37.9dBf (43μV)	16.1dBf (3.5μV) 37.9dBf (43μV)	16.1dBf (3.5μV) 37.9dBf (43μV)	16.8dBf (3.8μV) 38.3dBf (45μV)
at 65 081 Mono Stereo	83dB 75dB 77dB at 10mV input	76dB 70dB 72dB at 10mV input	76dB 70dB 72dB at 10mV input	76dB 70dB 72dB at 10m)/ input
Total Harmonic Distortion				
Stereo	0.08% 0.09% 30Hz to 15kHz	0.08%	0.08%	0.08%
Capture Ratio	+0.5, -1.0dB 1.0dB	+0.5, -2.0dB	+0.5, -2.0dB	30Hz to 15kHz +0.5, -2.0dB 1.0dB
Image Rejection Ratio Spurious Response	83dB	53dB	53dB	53dB
IF Response Ratio Alternate Channel	100dB 105dB	80dB 90dB	80dB 90dB	80dB 90dB
Selectivity	30dB at 300kHz (WIDE) 60dB at 300kHz (NARROW	25dB at 300kHz (WIDE))50dB at 300kHz (NARROW	50dB at 400kHz /)	50dB at 400kHz
AM Suppression Ratio Stereo Separation	65dB	65dB	65dB	55dB
Subcarrier Product	40dB at 50Hz to 10kHz	48dB at 1kHz 40dB at 100Hz to 10kHz	48dB at 1Hz 40dB at 100Hz to 10kHz	48dB at 1kHz 40dB at 100Hz to 10kHz
Ratio Antenna Impedance	60dB	50dB 300 ohms balanced	50dB 300 ohms balanced	50dB 300 ohms balanced
FM Frequency Range	88 MHz to 108 MHz	& 75 ohms unbalanced 88 MHz to 108 MHz	& 75 ohms unbalanced 88 MHz to 108 MHz	& 75 unbalanced 88 MHz to 108 MHz
AM TUNER SECTION Usable Sensitivity	10μV	10μV	10μV	12 <i>u</i> V
Signal to Noise Ratio Image Rejection Selectivity	52dB 50dB 50dB	52dB 50dB 50dB	52dB 50dB 50dB	52dB 47dB 50dB
GENERAL Power Requirement	604-1201/	604-1201/	COLL- 1001/	
Power Consumption	450 watts at full	330 watts at full	280 watts at full	60Hz 120V 200 watts at full power
AC Outlet Dimensions	Switched 1, Unswitched 1 . W 20-5/16" (516mm) H 6-1/16" (154mm)	Switched 1, Unswitched 1 . W 18-17/32" (471mm) H 5-15/32" (139mm)	Switched 1, Unswitched 1 . W18-17/32" (471mm) H 5-15/32" (139mm)	26.0 watts at no signal Switched 1, Unswitched 1 W 18-17/32'' (471mm) H 5-15/32'' (139mm)
Weight (Net)	28.7 lbs (13.0 kg) 32.2 lbs (14.6 kg) Simulated Walnut	19.0 lbs (8.6 kg) 19.0 lbs (8.6 kg) 21.6 lbs (9.8 kg) Simulated Walnut	D 14-3/32" (358mm) 18.3 lbs (8.3 kg) 20.9 lbs (9.5 kg) Simulated Walnut	D 14-3/32" (358mm) 15.7 lbs (7.1 kg) 18.7 lbs (8.5 kg) Simulated Walnut
	Grain	Grain	Grain	Grain



FM/AM Tuner Section/General

FM TUNER SECTION	KR-9050	KR-8050	KR-7050
Usable Sensitivity 50dB Quieting Sensitivity	9.8dBf (1.7μV)	10.3dBf (1.8µV)	10.3dBf (1.8µV)
Mono	14.1dBf (2.8μV) 36.1dBf (35μV)	15.3dBf (3.2μV) 36.8dBf (38μV)	16.1dBf (3.5μV) 37.9dBf (43μV)
Position 1 (S/N 40dB) Position 2 (S/N 60dB) Signal to Noise Ratio	25.2dBf (10μV) 45.2dBf (100μV)	25.2dBf (10μV) 45.2dBf (100μV)	
at 65 661 Mono	83dB 76dB	83dB 75dB	83dB 75dB
Total Harmonic Distortion	77dB at 10mV input	77dB at 10mV input	77dB at 10mV input
Mono Stereo Frequency Response	0.07% 0.08% 20Hz to 15kHz ±0.5dB	0.07% 0.08% 20Hz to 15kHz +0.5, -1.0dB	0.08% 0.09% 30Hz to 15kHz +0.5, -1.0dB
Capture Ratio Image Rejection Ratio Spurious Response Ratio IF Response Ratio	1.0dB 85dB 100dB 106dB	1.0dB 83dB 100dB 105dB	1.0dB 83dB 100dB 105dB
Selectivity	30dB at 300kHz (WIDE) 60dB at 300kHz (NARROW)	30dB at 300kHz (WIDE) 60dB at 300kHz (NARROW)	30dB at 300kHz (WIDE) 60dB at 300kHz (NARROW)
AM Suppression Ratio Stereo Separation Ratio	65dB 50dB at 1kHz 40dB at 50Hz to 10kHz	65dB 50dB at 1kHz 40dB at 50Hz to 10kHz	65dB 50dB at 1kHz 40dB at 50Hz to 10kHz
Subcarrier Product Ratio Antenna Impedance FM Frequency Range	73dB 300 ohms balanced & 75 ohms unbalanced 88 MHz to 108 MHz	70dB 300 ohms balanced & 75 ohms unbalanced 88 MHz to 108 MHz	70dB 300 ohms balanced & 75 ohms unbalanced 88 MHz to 108 MHz
AM TUNER SECTION			
Usable Sensitivity	10μV (250μV/m) 55dB 50dB 45dB	10μV (250μV/m) 52dB 50dB 45dB	10μV (250μV/m) 52dB 50dB 50dB
GENERAL			
Power Requirement	60Hz 120V 1,200 watts at full power 80 watts at no signal	60Hz 120V 850 watts at full power 60 watts at no signal	60Hz 120V 600 watts at full power 45 watts at no signal
AC Outlet Dimensions	Switched 1, Unswitched 2 W 23-11/16" (602mm) H 6-31/32" (177mm) D 18 6/16" (465mm)	Switched 1, Unswitched 2 W 22-15/32" (571mm) H 6-3/4" (172mm) D 16-3/16" (411mm)	Switched 1, Unswitched 2 W 21-1/2" (546mm) H 6-3/4" (172mm) D 16 2/16" (411mm)
Weight (Net)	52.9 lbs (24.0 kg) 57.3 lbs (26.0 kg) Walnut Veneer	41.9 lbs (19.0 kg)	33 lbs (15 kg) 37.9 lbs (17.2 kg) Simulated Walnut Grain





KR-5010

POWER AMPLIFIER SECTION	KR-6050	KR-5010	KR-4010	KR-3010
Power Output	60 watts per channel, both channels driven at	45 watts per channel, both channels driven at	35 watts per channel, both channels driven at	27 watts per channel, both channels driven at
	8 ohms from 20Hz to			
	20kHz with no more			
	than 0.02% total	than 0.03% total	than 0.03% total	than 0.05% total
	harmonic distortion	harmonic distortion	harmonic distortion	harmonic distortion
Both Channels Driven				
into 8 ohms at 1kHz	65W + 65W	50W + 50W	40W + 40W	28W + 28W
into 4 ohms at 1kHz	80W + 80W	52W + 52W	45W + 45W	28W + 28W
Dynamic Power Output	300W at 4 ohms	190W at 4 ohms	150W at 4 ohms	. 80W at 4 ohms
Total Harmonic Distortion				
(20Hz to 20kHz from AUX)				
rated power into 8 ohms	0.02%	0.03%	0.03%	. 0.05%
1W power into 8 ohms	0.007%	0.007%	0.007%	. 0.02%
Intermodulation Distortion				
(60Hz: 7kHz=4:1SMPTE)	-			
rated power into 8 ohms	0.01%	0.02%	0.02%	. 0.05%
1W power into 8 ohms	0.009%	0.01%	0.01%	. 0.03%
Slew Rate	$\pm 100 V/\mu$ sec			
Rise Time	0.95μ sec			
Damping Factor				
(20-20kHz at 8 ohms)	40	28	28	. 28
Input Sensitivty /				
Impedance				
PHONO 1.2	.2.5mV/50k onms	2.5m V/50K onms	2.5mV/50K onms	2.5mV/50k onms
	.200m V/50k onms		150	
Circulto Noise Datio		150m V/50k onms	150m V/50k onms	. 150m V/50k onms
(A weighted)				
PHONO 1. 2	84dB for 2 5mV input	82dB for 2.5mV input	81dB for 2 5mV input	81dB for 2 5mV input
FIIONO 1, 2	90dB for 5 0mV input	88dB for 5 0mV input	87dB for 5 0mV input	87dB for 5 0mV input
ΔΙΙΧ & ΤΔΡΕ	105dB for 200mV input	Coup for blonny input		or ab for blonry input
ТАРЕ		105dB for 150mV input	104dB for 150mV input	. 102dB for 150mV input
Maximum Phono Input			the same part to end on the same	And a second sec
Level at 1kHz	200mV (rms), THD 0.02%	140mV (rms), THD 0.03%	140mV (rms), THD 0.03%	140mV (rms), THD 0.05%
Frequency Response				
PHONO RIAA	.20Hz to 20kHz	20Hz to 20kHz	20Hz to 20kHz	20Hz to 20kHz
Standard Curve	±0.2dB	±0.3dB	±0.3dB	±0.3dB
AUX & TAPE	5Hz to 240kHz –3dB			
ТАРЕ		5Hz to 170kHz	5Hz to 170kHz	7Hz to 150kHz
		+Q.5dB —3dB	+0.5dB –3dB	+0.5dB –3dB
I one Control		1010 1001		10 IB - 10011-
	±9dB at 100Hz		±8dB at 100Hz	
	±9dB at 10kHz	±80B at 10kHz	±80B at 10KHz	±80B at TUKHZ
Loudness Control	10dB at 100Hz	+10dB at 100U-		+10dB at 100Hz
(VOI 300B)	18Hz 6dB/oct		+100B at 100Hz	
High Filter	5kHz 6dB/oct	3kHz 6dB/oct	3kHz 6dB/oct	
Output Level/Impedance				
TAPE REC Out (Pin)	200mV/300 ohms	150mV/300 ohms	150mV/300 ohms	150mV/300 ohms
TAPE REC Out (DIN)	30mV/80k ohms	30mV/80k ohms	30mV/80k ohms	30mV/80k ohms





FM TUNER SECTION	KR-6050	KR-5010	KR-4010	KR-3010
Usable Sensitivity 50dB Quieting Sensitivity	. 10.3dBf (1.8µV)	10.3dBf (1.8μV)	10.3dBf (1.8μV)	10.8dBf (1.9µV)
Mono	16.1dBf (3.5μV) 37.9dBf (43μV)	16.1dBf (3.5μV) 37.9dBf (43μV)	16.1dBf (3.5μV) 37.9dBf (43μV)	16.8dBf (3.8μV) 38.3dBf (45μV)
Signal to Noise Ratio at 65 dBf	00 ID			
Stereo	75dB	76dB 70dB 72dB at 10mV input	76dB 70dB 72dB at 10mV input	76dB 70dB 72dB at 10mV input
Total Harmonic Distortion	, ab at forme input			
Mono	0.08%	0.08%	0.08%	0.08%
Stereo	0.09%	0.09%	0.09%	0.09%
Frequency Response	30Hz to 15kHz	30Hz to 15kHz	30Hz to 15kHz	30Hz to 15kHz
Canture Batio	+0.5, -1.00B	+0.5, -2.0dB	+0.5, -2.0dB	+0.5, -2.0dB
Image Rejection Ratio	83dB	53dB	53dB	53dB
Spurious Response		550B	550D	5500
Ratio	100dB	80dB	80dB	80dB
IF Response Ratio	105dB	90dB	90dB	90dB
Selectivity	30dB at 300kHz (WIDE) 60dB at 300kHz (NARROW	25dB at 300kHz (WIDE))50dB at 300kHz (NARROW	50dB at 400kHz /)	50dB at 400kHz
AM Suppression Ratio Stereo Separation	65dB	65dB	65dB	55dB
	40dB at 50Hz to 10kHz	40dB at 100Hz to 10kHz	40dB at 100Hz to 10kHz	48dB at 1kHz 40dB at 100Hz to 10kHz
Subcarrier Product				
Ratio	60dB	50dB	50dB	50dB
Antenna Impedance	300 ohms balanced	300 ohms balanced	300 ohms balanced	300 ohms balanced
FM Frequency Bange	88 MHz to 108 MHz	& 75 ohms unbalanced	& 75 ohms unbalanced	& /5 unbalanced
	VO MITZ 10 TOO MITZ		50 MH2 10 100 MH2	
AM TUNER SECTION			5	
Usable Sensitivity	$10\mu V$	$10\mu V$	$10\mu V$	$12\mu V$
Signal to Noise Ratio	52dB	52dB	52dB	52dB
Selectivity	50dB	50dB	50dB	470B
GENERAL		a la constante e		
Power Requirement	60Hz 120V	60Hz 120V	60Hz 120V	60Hz 120V
Fower Consumption	Abo watts at full	330 watts at full	280 watts at full	200 watts at full
	45 watts at no signal	27.5 watts at no signal	27.5 watts at no signal	26.0 watts at no signal
AC Outlet	Switched 1, Unswitched 1	Switched 1. Unswitched 1	Switched 1 Unswitched 1	Switched 1 Unswitched 1
Dimensions	W 20-5/16" (516mm)	W 18-17/32" (471mm)	W18-17/32" (471mm)	W 18-17/32" (471mm)
	H 6-1/16" (154mm)	H 5-15/32" (139mm)	H 5-15/32" (139mm)	H 5-15/32" (139mm)
	D 16-3/32" (409mm)	D 14-3/32" (358mm)	D 14-3/32" (358mm)	D 14-3/32" (358mm)
vveight (Net)	28.7 lbs (13.0 kg)	19.0 lbs (8.6 kg)	18.3 lbs (8.3 kg)	15.7 lbs (7.1 kg)
(Gross)	Simulated Walnut	∠ I.O IDS (9.8 Kg)	20.9 lbs (9.5 kg)	18.7 lbs (8.5 kg)
	Grain	Grain	Grain	Grain





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