

# KR-710



## FOR YOUR RECORDS

Record the serial number, found on the back of the unit, in the spaces designated on the warranty card, and in the space provided below. Refer to the model and serial numbers whenever you call upon your Kenwood dealer for information or service on this product.

Model KR-710 Serial number \_\_\_\_\_

## UNPACKING

Unpack the unit carefully and make sure that all accessories and cables are put aside so they will not be lost.

Examine the unit for any possibility of shipping damage. If your unit is damaged or fails to operate, notify your dealer immediately. If your unit was shipped to you directly, notify the shipping company without delay. Only the consignee (the person or company receiving the unit) can file a claim against the carrier for shipping damage.

We recommend that you retain the original carton and packing materials for use should you transport or ship the unit in the future.

## INSTALLATION PRECAUTIONS

- Avoid locations subject to direct sunlight.
- Avoid high or low temperature extremes.
- Keep the unit away from heat radiating sources.
- Choose a location that is relatively free of vibration or excessive dust.
- Make sure power is off before making any system connections.

## WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

## IMPORTANT!

### U.S.A. AND CANADA

Units shipped to the U.S.A. and Canada are designed for operation on 120 volts AC only. These units are not equipped with an AC Voltage Selector switch and the discussion of such a switch that follows should be disregarded.

### ALL OTHER COUNTRIES

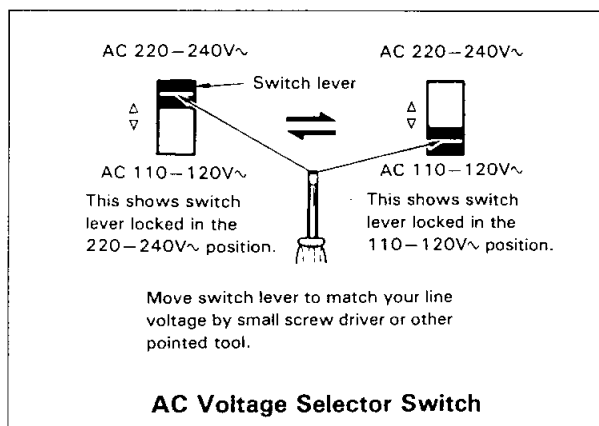
Units shipped to countries other than the U.S.A. and Canada are equipped with an AC Voltage Selector switch on the rear panel.

Refer to the following paragraph for the proper setting of this switch.

## AC VOLTAGE SELECTION

This unit operates on 110-120 volts or 220-240 volts AC. The AC Voltage Selector Switch on the rear panel is set to the voltage that prevails in the area to which the unit is shipped. Before connecting the power cord to your AC outlet, make sure that the setting position of this switch matches your line voltage. If not, it must be set to your voltage in accordance with the following direction.

**Note:** Our warranty does not cover damage caused by excessive line voltage due to improper setting of the AC Voltage Selector Switch.



## CLEANING

Do not use volatile solvents such as alcohol, paint thinner, gasoline, benzine, etc. to clean the cabinet. Use a silicone cloth or a clean dry cloth.

## VENTILATION HOLES

The case top is slotted to allow ventilation. Never block these holes with ornamental cloths, books or other objects. Make sure that metal objects such as coins, hairpins, or needles do not enter the unit through the ventilation holes. The result could be a serious malfunction or a possible shock hazard. Make sure that children do not insert foreign objects into the ventilation holes.

## SERVICE OR MODIFICATIONS

Do not remove the cabinet or touch internal parts. Refer all service to qualified service personnel. Unauthorized modifications can result in a dangerous shock hazard and can void the warranty.

## POWER CORD

Always insert or remove the power plug from the AC outlet by grasping the plug body. Never pull or stretch the cord. Take care that the cord is not subject to traffic or bent sharply around furniture. Keep heavy object off the cord; never route it under rugs, and avoid the use of extra extension cords. Attention to these precautions will avoid fire or shock hazards.

## ACOUSTIC FEEDBACK

Occasionally a disturbing howling sound caused by acoustic feedback, may be heard. This is generally caused by the relative positions of the turntable and speaker enclosures. The sound pressure radiated from the speaker box surrounds and vibrates the turntable.

This vibration is picked up by the cartridge, sent to the unit as an electrical signal, and returned to the speaker. This again causes the speakers to radiate vibration which induces sympathetic vibrations in the turntable and cartridge. Sympathetic vibrations are reinforced with each repeating cycle and result in an undesirable sound called oscillation or "howling". To prevent it, keep your turntable away from your speakers. Also mounting your turntable on shock-absorbing pads may help.

## FM ANTENNAS

### FM Outdoor Antenna

Consult with your dealer or service man about the best method of selecting and erecting an outdoor FM antenna. The choice of lead-in (feeder) wire is also important. The flat ribbon-shaped twin lead performs well electrically, is cheaper and is somewhat easier to handle in routing through windows and around rooms. Coaxial cable is more expensive, does a much better job of minimizing interference, is less prone to the effects of weather and close-by metal objects, and is nearly as good a signal conductor as the ribbon type wire. The latter is particularly true of foam-type coaxial cables. Coaxial cable is somewhat more difficult to install at the point where the cable enters the building. If coaxial cable is selected, make sure the antenna is designed to drive that type of cable. In many cases a matching transformer (balun) must be used to connect the antenna terminals to the coaxial cable.

#### Note:

Do not make connections to 300  $\Omega$  and 75  $\Omega$  antenna terminals simultaneously.

### FM Indoor Antenna

Connect the T-shaped indoor antenna (supplied) to the 300  $\Omega$  FM ANTENNA terminals as shown at right. Spread the two arms that form the top of the "T" horizontally and hold them against convenient wall surfaces. Try several locations for best results on your favorite stations. Tape the antenna in place where the best compromise is found between listening results and appearance.

## TAPE DECKS

If only one tape deck is to be connected to the system it is recommended that it be connected to the jacks marked TAPE A.

Tape deck input and output cables are normally terminated with phono plugs.

### Playback

Plug the left and right output cables of the tape deck into the **L** and **R** TAPE A PLAY jacks.

### Record

Plug the left and right input cables of the tape deck into the **L** and **R** TAPE A REC jacks.

### Second Tape Deck

Plug the input and output cables from the second tape deck into the REC and PLAY jacks marked TAPE B.

## TURNTABLES

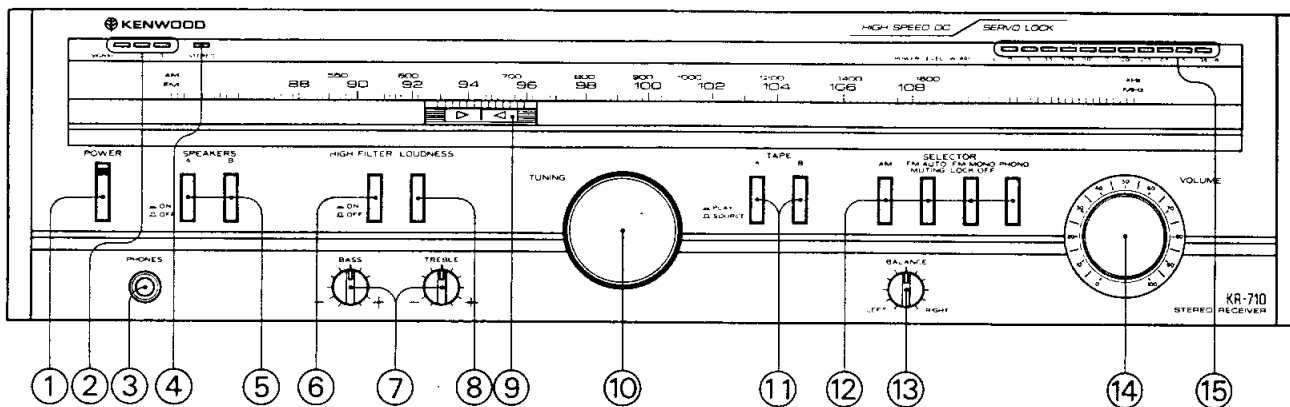
Your stereo turntable has two audio cables that are terminated with phono plugs. Plug the left channel plug into the **L** and the right channel plug into the **R** PHONO input jack as shown.

If the turntable has a ground wire, connect it to this unit's GND terminal to avoid hum.

## GROUND

For maximum safety and minimum interference connect the GND terminal to a good earth ground if practicable. A good earth ground is a cold water pipe or a metal stake driven into moist earth. However, never use a gas pipe for this purpose.

# CONTROLS, INDICATORS AND CONNECTORS



## ① POWER switch

Turns the power to the unit on and off.

## ② SIGNAL indicators

These indicators show the relative signal levels of incoming broadcasts. For best reception, both the FM and AM antennas should be installed so that the maximum number of lamps will light.

## ③ PHONES jack

Stereo headphones are plugged into this jack.

## ④ STEREO indicator

Lights to show that the selected FM channel is transmitting in stereo and that the signal is strong enough to overcome muting.

## ⑤ SPEAKERS switches

**A** — Activates speakers connected to the SPEAKERS **A** terminals on the rear panel.

**B** — Activates speakers connected to the SPEAKERS **B** terminals on the rear panel.

**A & B** — Activates speakers connected to the SPEAKERS **A** and **B** terminals simultaneously.

## ⑥ HIGH FILTER switch

Set this switch to ON to reduce high frequency noise, such as tape hiss, record scratch etc.

## ⑦ BASS and TREBLE controls

Turn clockwise to increase bass or treble response, counterclockwise to reduce bass or treble response. Response is flat when set to the center.

## ⑧ LOUDNESS switch

This switch boosts bass response to compensate for the lack of response in human hearing to those frequencies at low volume levels. This switch should be switched off when listening at normal and high levels.

## ⑨ TUNING pointer

This pointer is equipped with 3 red LEDs and 1 green LED. When the tuned frequency is a little lower or higher than the frequency, the right or left red LED lights respectively. When tuned exactly to the frequency, the center red LED lights. In the FM AUTO mode, when you release the tuning knob, the green LED lights and the servo-lock feature functions.

## ⑩ TUNING knob

AM and FM stations are selected by turning this knob. This serves as the touch switch for the servo-lock feature, too: when you touch it, the servo-lock feature is turned off.

## ⑪ TAPE switches

**A, B SOURCE** — The signal applied to the record terminals of a tape deck is heard.

**A PLAY** — To monitor a recording in progress or to play back a tape from a tape deck connected to the TAPE A jacks.

**B PLAY** — To monitor a recording in progress or to play back a tape from a tape deck connected to the TAPE B jacks.

**A, B PLAY** — Depressing A and B simultaneously facilitates dubbing (tape copying) from the tape deck connected to the B jacks into the tape deck connected to the A jacks.

### Note:

Be sure to set both TAPE switches to "SOURCE" when not operating a tape deck.

## ⑫ SELECTOR switches

**AM** — Push for AM reception.

**FM AUTO MUTING** — The unit switches automatically between stereo and monaural operation in accordance with the manner in which the selected station is operating. In addition, noise is silenced as you tune between channels.

**FM MONO LOCK OFF** — Provides monaural operation regardless of the manner of transmission.

**PHONO** — Push for turntable operation.

## ⑬ BALANCE control

This control permits balancing of left and right channels when an imbalance exists in the sound source, or to correct acoustic imbalance due to room conditions. Turn it to the left from the center position to boost the left channel; turn it to the right of center to raise the level of the right channel.

## ⑭ VOLUME control

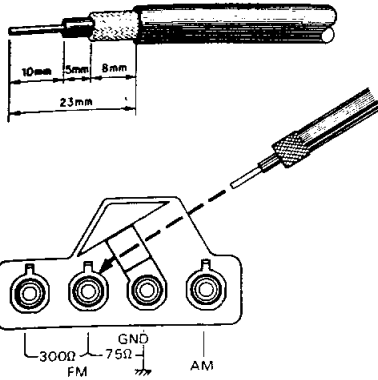
This control adjusts left- and right-channel volume simultaneously. Set it for the desired listening level.

## ⑮ POWER LEVEL indicators

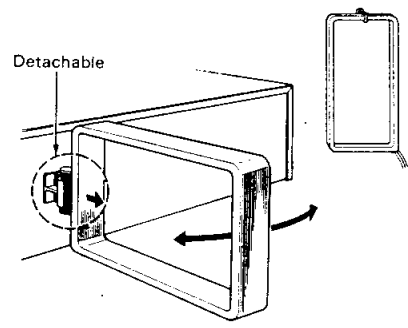
The POWER LEVEL indicators (LED) show the effective power being delivered to your speakers.

The indicators are calibrated for an 8-ohm load. If 4-ohm speakers are used, multiply the reading by 2; for 16-ohm speakers, divide the reading by 2.

# SYSTEM CONNECTIONS



75Ω Coaxial Cable Connection



AM Loop Antenna Setting

## AM ANTENNAS

### AM Loop Antenna

Tune in your favorite AM station and position the loop antenna for best reception. Try other stations and find the position that gives best overall reception. When this unit is mounted in a rack or placed on a shelf with insufficient space behind, remove the loop antenna and hang it from a wall in the direction which gives best reception as shown at left. If the length of the lead wire is too short, add a lead wire of an appropriate length.

### AM Outdoor Antenna

In steel buildings or at a great distance from the transmitter, it may be necessary to install an outside long-wire antenna. The end of this wire should be stripped of insulation and connected to the AM terminal.

## SPEAKERS

If only one set of speakers is to be connected, make connections to the terminals marked SPEAKERS **A**. Connect the speakers to the **L** and **R** terminals in accordance with the location selected for each speaker. To ensure correct speaker phasing, observe polarity marks; connect terminals marked (+) on the receiver to similarly-marked speaker terminals. Do the same for receiver and speaker terminals marked with a minus sign. Reversal of speaker leads will result in loss of bass tones and poor stereo separation.

If a second set of speakers is to be used make connections at the set of terminals, marked **B**.

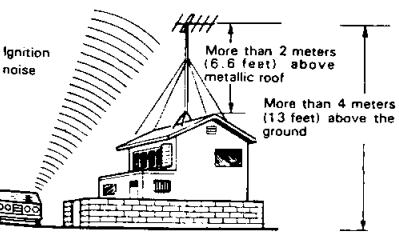
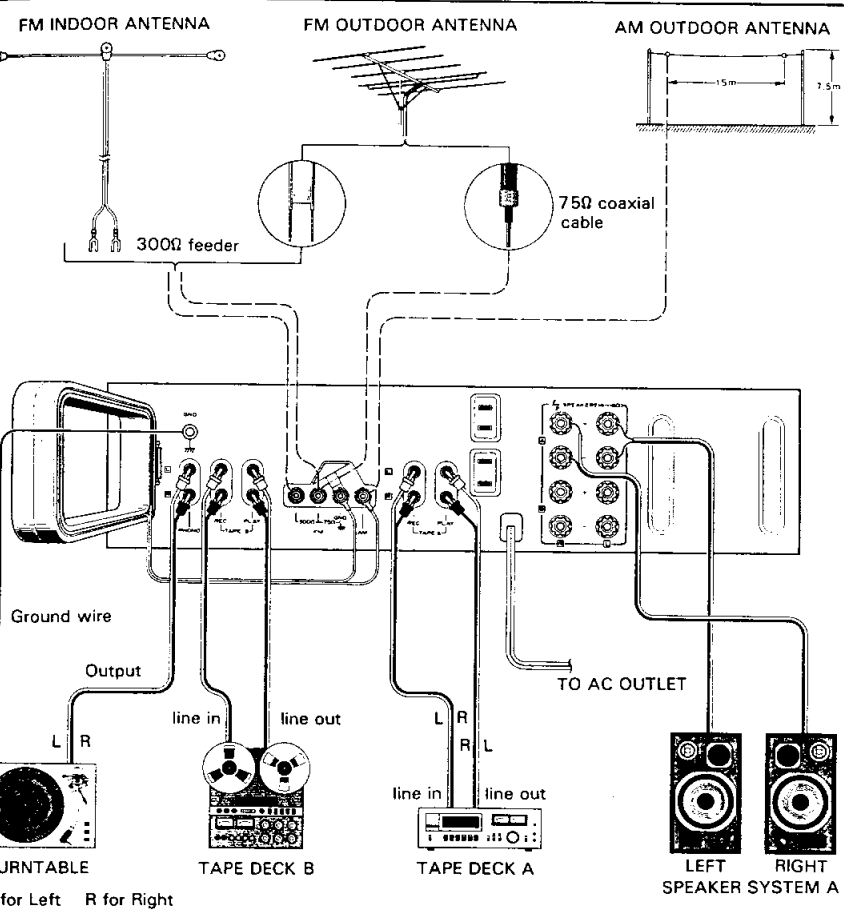
It is recommended that the tips of the speaker leads be soldered, or the strands of individual leads be twisted together to eliminate any possibility of short-circuits forming in the speaker connecting network.

**Note:**  
If a single pair of speakers is to be used, each speaker must be rated at 4 ohms or more.

## AC OUTLETS

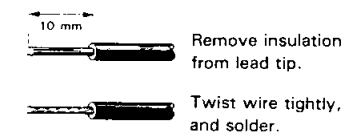
The AC outlets on the rear panel of the unit may be used to supply power to other components such as a turntable, tape deck, etc. Never connect any equipment here whose power consumption exceeds the capacity of each outlet.

1. **SWITCHED** outlet — This is 100 watts maximum in capacity and is controlled by the POWER switch on the front panel.
2. **UNSWITCHED** outlet — This is 200 watts maximum in capacity and power is available at all times.

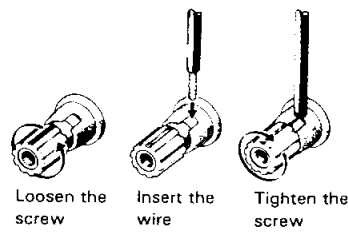


- To minimize auto-ignition noise, locate the antenna as far from heavy traffic as possible.
- Keep the feeder or coaxial cable as short as possible. Do not bundle or roll up excess cable.
- The antenna should be at least two meters (6.6 feet) from reinforced concrete walls, or metal structures.

FM Outdoor Installation



### Speaker Lead Tips



Speaker Lead Connection

# OPERATING INSTRUCTIONS

## AM/FM RECEPTION

1. Push the AM or FM AUTO MUTING button.
2. Turn the TUNING knob to place the TUNING pointer at the desired frequency. Incoming signal level will be indicated by the number of SIGNAL lamps that glow. The center LED of the TUNING pointer lights when correct tuning is attained.
3. Adjust VOLUME and tone to your preference.

## Abnormal Condition On FM Reception

4. In cases where the desired signal is exceptionally weak, a high frequency noise (hiss) may accompany stereo broadcasts. In that case better results may be obtained by selecting FM MONO LOCK OFF.

## TURNTABLES

1. Push the PHONO button.
2. Operate the turntable.
3. Adjust VOLUME and tone to your preference.

## TAPE DECKS

### Tape Playback

1. Set the TAPE A or B switch to PLAY to select output from tape decks connected to the TAPE A or B jacks.
2. Operate the tape deck.
3. Adjust VOLUME and tone to your preference.

### Monitoring

If the tape deck is equipped with three heads, you can compare the sound quality of the recording in progress with that of the source material by switching the appropriate TAPE switch between SOURCE and PLAY while the recording is being made.

### Recording (one tape deck)

1. Set the SELECTOR to your desired program source. Set the both TAPE switches to SOURCE. To monitor the recording, set the appropriate TAPE switch A or B to PLAY depending on the set of jacks to which your tape deck is connected.
2. Set up your tape deck for recording and set recording levels with the controls on your tape deck. The volume control and tone controls on the receiver do not affect the signal applied to the tape deck for recording purposes.
3. Adjust listening level and tone at the receiver for your preference in monitoring the signal; these settings will not affect the recording.

### Recording (two tape decks)

1. Set the SELECTOR to your desired program source.
2. Set both TAPE switches to SOURCE.
3. Recordings can now be made on both tape decks simultaneously.

To monitor these recordings, use the TAPE switch as follows: Set to "A PLAY" to monitor the recording being made in the tape deck connected to the TAPE A jacks.

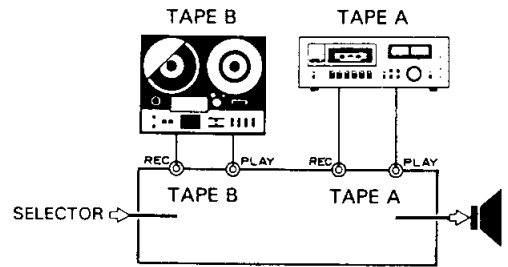
### Note:

When recording with two tape decks, a source signal can not be recorded in the tape deck connected to "A PLAY" jacks when the TAPE switch is set to "B PLAY". Therefore, be sure to set the TAPE switch to "SOURCE" or "A PLAY" only.

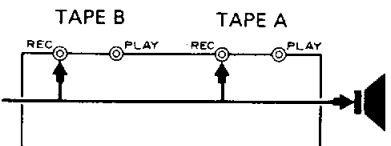
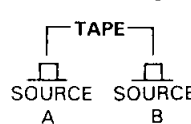
4. Recording levels should be set using the controls on the individual tape decks.

## Tape-to-Tape Dubbing

Tape recordings may be duplicated easily using tape deck B to play the prerecorded tape and tape deck A to record the copy.

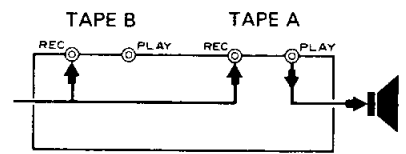
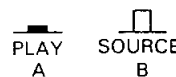


### For Recording



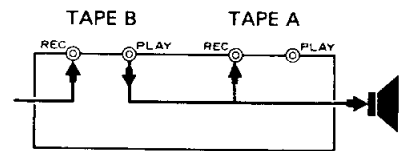
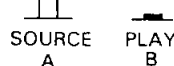
The input signal selected by the SELECTOR switch is always present at a fixed level at the TAPE A and TAPE B REC jacks.

### For Playback



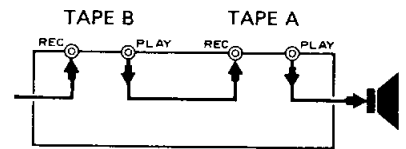
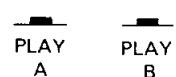
Playback signal is supplied to the TAPE A PLAY jacks, and is heard from the speakers.

### For Playback



Playback signal is supplied to the TAPE B PLAY jacks, and is heard from the speakers.

### For Dubbing



Switch as shown to record a copy on tape deck A from a tape played on tape deck B. The recording can be monitored.

# IN CASE OF DIFFICULTY

If your unit should not perform as expected, consult the table below to see if the problem can be corrected before seeking help from your Kenwood dealer or service representative.

Occurs during AM Reception only	CAUSE	REMEDY
Continuous low-frequency buzz. Most noticeable on weak stations or at night.	Interference from fluorescent lamps, lamp dimmers, other appliances.	Turn off fluorescent lamps or lamp dimmer (Interference may come from neighbors lamps). Try AM outdoor antenna and good ground at GND connections. This problem may be impossible to remove altogether.
High-frequency whistle especially at night.	Interference from TV set. Beat from adjacent AM station.	Turn off TV set, if problem disappears try relocating TV set. Impossible to eliminate but try HIGH FILTER.
Occurs During FM Reception only	CAUSE	REMEDY
Continuous hiss or buzzing with broadcast.	Weak antenna signal.	Install outdoor antenna.
Occasional sharp rhythmic crackling noise.	Ignition interference from autos.	Locate outdoor antenna as far from road as possible, use coaxial feeder cable.
FM automatic circuit fails to respond to stereo broadcast.	Incoming signal is too weak.	Reposition indoor antenna or erect an outdoor antenna.
PHONO Playback only	CAUSE	REMEDY
No sound from both or one speaker.	Turntable output disconnected.	Check phono cables.
Loud hum drowns out sound.	Poor ground connection at phono cable connections.	Check phono plugs, particularly outer shell connections.
Background buzz.	TV signal picked up by phono cable (especially near transmitter).	Route phono cables to minimize buzz.

## SPECIFICATIONS

### POWER AMPLIFIER SECTION

#### Power Output

**28 watts\* per channel, minimum RMS both channels driven, at 8 ohms from 20 Hz to 20,000 Hz with no more than 0.08% total harmonic distortion.**

#### Both Channels Driven

into 8 ohms at 1,000 Hz	31 W + 31 W
into 4 ohms at 1,000 Hz	36 W + 36 W
<b>Total Harmonic Distortion (20 Hz to 20 kHz from TAPE)</b>	
rated power into 8 ohms	0.08%
1 W power into 8 ohms	0.04%
<b>Intermodulation Distortion (60 Hz:7 kHz = 4:1 SMPTE)</b>	
rated power into 8 ohms	0.04%
1 W power into 8 ohms	0.02%
<b>Transient Response</b>	
Rise Time	1.5 $\mu$ s
Slew Rate	$\pm 50$ V/ $\mu$ s
<b>Damping Factor</b>	45 at 1 kHz, 8 ohms
<b>Input Sensitivity/Impedance</b>	
PHONO	2.5 mV/50 kohms
TAPE	150 mV/50 kohms
<b>Signal to Noise Ratio (A weighted)</b>	
PHONO	78 dB for 2.5 mV input 84 dB for 5.0 mV input
TAPE	104 dB for 150 mV input
<b>Maximum Phono Input Level</b>	
at 1,000 Hz	200 mV (RMS), THD 0.08%
<b>Frequency Response</b>	
PHONO RIAA Standard Curve	30 Hz to 20 kHz $\pm 0.4$ dB
TAPE	7 Hz to 200 kHz -3 dB
<b>Tone Control</b>	
Bass	$\pm 8$ dB at 100 Hz
Treble	$\pm 8$ dB at 10 kHz
<b>Loudness Control (VOL. -30dB)</b>	+10 dB at 100 Hz
<b>High Filter</b>	5 kHz, 6 dB/oct
<b>Output Level/Impedance</b>	
TAPE REC Out (Pin)	150 mV/300 ohms

### FM TUNER SECTION

Usable Sensitivity	10.8 dBf (1.9 $\mu$ V)
<b>50 dB Quieting Sensitivity</b>	
Mono	17.2 dBf (4 $\mu$ V)
Stereo	37.2 dBf (40 $\mu$ V)

### Signal to Noise Ratio at 65 dBf

Mono	76 dB
Stereo	71 dB
<b>Total Harmonic Distortion</b>	
Mono	0.1%
Stereo	0.15%
<b>Frequency Response</b>	30 Hz to 15 kHz, +1 dB, -2 dB
<b>Capture Ratio</b>	1.0 dB
<b>Image Rejection Ratio</b>	48 dB
<b>Spurious Response Ratio</b>	70 dB
<b>IF Response Ratio</b>	90 dB
<b>Alternate Channel Selectivity</b>	52 dB at 400 kHz
<b>AM Suppression Ratio</b>	50 dB
<b>Stereo Separation Ratio</b>	45 dB at 1,000 Hz 35 dB at 50 Hz to 10 kHz
<b>Subcarrier Product Ratio</b>	45 dB
<b>Antenna Impedance</b>	300 ohms balanced & 75 ohms unbalanced
<b>FM Frequency Range</b>	88 MHz to 108 MHz

### AM TUNER SECTION

Usable Sensitivity	20 $\mu$ V (350 $\mu$ V/m)
Signal to Noise Ratio	50 dB
Image Rejection	40 dB
Selectivity	45 dB

### GENERAL

<b>Power Consumption</b>	160 W (UL and CSA) 160 W (8 ohms at rated power) 24 W (No Signal)
<b>AC Outlet</b>	Switched 1, Unswitched 1
<b>Dimensions USA and Canada</b>	<b>Other Countries</b>
W: 458 mm (18-1/32")	440 mm (17-5/16")
H: 123 mm (4-27/32")	123 mm (4-27/32")
D: 298 mm (11-23/32")	298 mm (11-23/32")
<b>Weight</b>	
(Net)	7.5 kg (16.5 lb)      7.2 kg (15.9 lb)
(Gross)	8.5 kg (18.7 lb)      8.2 kg (18.1 lb)

\*Measured pursuant to Federal Trade Commission's Trade Regulation rule on Power Output Claims for Amplifier in U.S.A.

#### Note:

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

