AM-FM STEREO TUNER

KT-7500

INSTRUCTION MANUAL

the sound approach to quality

KENWOOD

INTRODUCTION

The purpose of this manual is to acquaint you with the operating features of your new tuner. You will notice that in every detail of planning, engineering, styling, operating convenience, and adaptability, we have sought to anticipate your needs and desires.

We suggest that you read this manual carefully. Knowing how to set up your tuner, to the best advantage will enhance your listening pleasure right from the start. You will also become aware of the ease with which you can adjust your tuner to meet your special requirements.

PRECAUTIONS CONCERNING INSTALLATION

(a) Avoid locations subject to direct sunlight.
(b) Avoid high or low temperature extremes.
(c) Keep the tuner away from heat radiating source.

SERIAL NUMBER

Record your SERIAL NUMBER on the spaces designated on the warranty card. You will find the serial number on the back of the unit.

AFTER UNPACKING

After unpacking, we recommend you inspect and examine the unit for any possible 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 you retain the original carton and packing materials to prevent any damage should you transport or ship your unit in the future.

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

AC VOLTAGE SELECTION

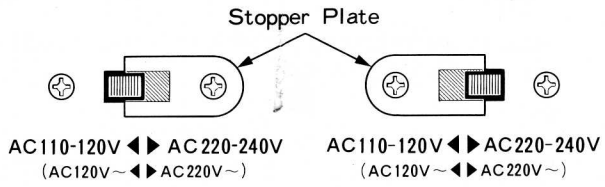
The KT-7500 operates on 110 ~ 120 volts or 220 ~ 240 volts AC. The AC Voltage Selector Switch on the rear panel is set to the voltage that prevails in the area to which the tuner are shipped. Before operating this unit, make sure that the position of the AC Voltage Selector Switch matches your line voltage. If not, it must be changed to the proper setting.

To change, first disconnect the AC line cord. Then remove the stopper plate and slide the AC Voltage Selector Switch to the opposite side. Then reattach the stopper plate to the other side.

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

NOTES

1. Units shipped to the U.S.A. and CANADA are designed to be operated with 120 volts AC only. Units shipped to the Scandinavian countries are designed to be operated with 220 volts AC only. Therefore the above units are not equipped with an AC Voltage Selector Switch so all reference to such a switch throughout this manual should be disregarded.
2. Units shipped to all other countries are equipped with an AC Voltage Selector Switch on the rear panel that is preset at the factory to the voltage generally available in the destination area.



1. Remove screw and stopper plate.
2. Switch lever to opposite side.
3. Lock lever by attaching stopper plate to opposite screw.

( ) is European type.

AC VOLTAGE SELECTOR SWITCH

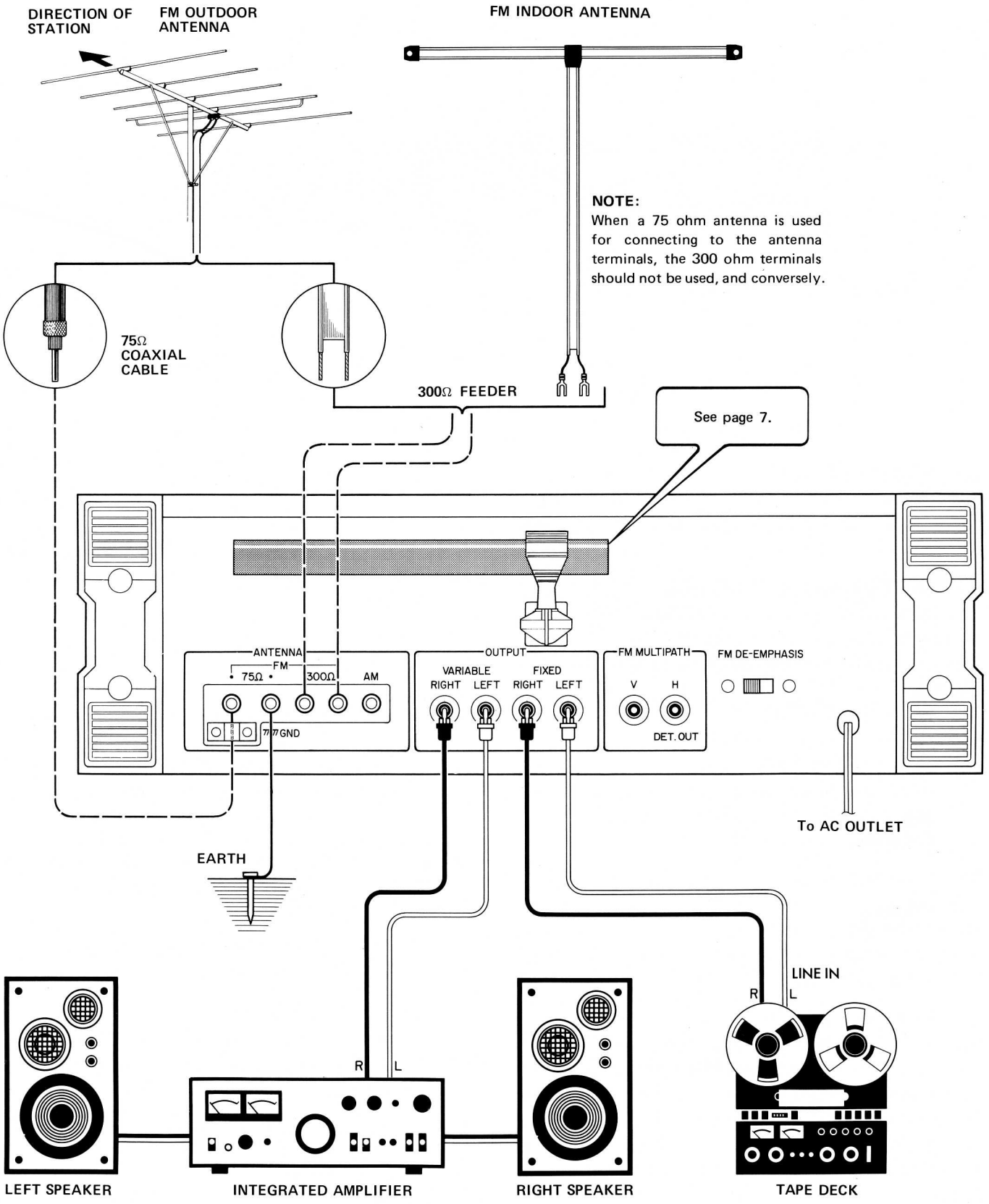
CONTENTS

FEATURES

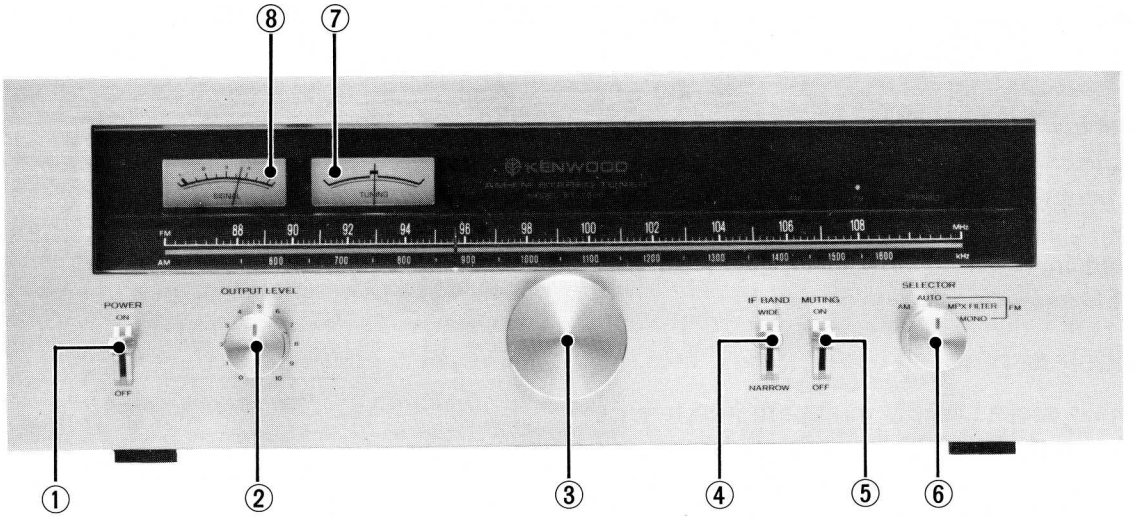
1. Image response characteristic is improved by the adoption of high-accuracy 5-ganged variable capacitor.
2. Cross-modulation characteristic is improved by use of Dual Gate MOS FETs for the RF amplifier.
3. Inter-modulation characteristic is improved by use of Dual Gate MOS FET for the mixing circuit.
4. The IF band selector of WIDE/NARROW is installed. In the NARROW setting, high selectivity is assured by use of a 10-element phase linear ceramic filter.
5. The circuits of WIDE of the IF band are provided with 2-element phase linear ceramic filter.
6. Adoption of wide band quadrature discriminator has extremely reduced distortion in stereo reception.
7. The PLL of MPX is provided with automatic loop response control to reduce distortion in stereo reception.
8. Since dual power supply system is adopted for all audio signal lines, dynamic range is very wide.
9. Built-in de-emphasizer to match any Dolbyized FM broadcasts.*

* Dolby is a trade mark of Dolby Laboratories Inc.

INTERCONNECTING DIAGRAM



CONTROLS AND THEIR FUNCTIONS



① POWER SWITCH

Move up to ON to power the set, down to turn it OFF. The dial indicator lights when the power is on.

② OUTPUT LEVEL CONTROL

The signals passing from the OUTPUT (VARIABLE) terminals can be controlled by the OUTPUT LEVEL knob. Use the controls in the following situations:

1) When the KT-7500 is connected to a stereo amplifier and the output level is too high for the input terminals.
2) When the tuner output level does not match that of other units (turntable, tape deck, etc.) connected to the amplifier.

③ TUNING KNOB

Use the tuning knob to select the AM and FM station desired. Adjust further by tuning for maximum deflection of the SIGNAL meter while listening to the speaker output.

④ IF BAND SELECTOR

Switch positions and functions are as follows:
WIDE – This setting is suitable for normal usage in an area where no radio interference occurs. Reception with a low distortion can be expected.
NARROW – This setting is to increase selectivity against interference from a closely adjacent station.

⑤ FM MUTING SWITCH

This switch silences the interstation noises on the FM band. However, it may also silence the weak signals of long distance FM stations or weaker FM stations in which case it may be necessary to turn off this switch.

⑥ SELECTOR SWITCH

FM AUTO – For reception of both FM monophonic and stereo. The tuner will automatically identify and separate FM stereophonic broadcasts. When an FM stereo broadcast is tuned in, the STEREO indication lights up.
MPX FILTER – Unlike FM monophonic reception, high frequency noise may sometimes be encountered when receiving FM stereophonic broadcasts. The MPX FILTER in this tuner effectively cuts such disturbances. This switch has nothing to do with monophonic reception.
FM MONO – For FM monophonic reception.
AM – For AM reception.

⑦ TUNING METER

This meter is used for precise tuning to the center of the FM channel. Turn the tuning knob until meter pointer is at the center of the heavy black area of the meter scale. Center tuning provides maximum separation and minimum distortion.

⑧ SIGNAL METER

This meter indicates incoming signal strength at the antenna with correct linearity from the weakest to the strongest signals.

CONNECTING INSTRUCTIONS

FM ANTENNA CONNECTIONS

Since FM broadcast signals travel along a straight, direct-line path, they become rather weak behind hills and buildings even in the vicinity of a broadcasting station. FM signals also become weak in areas distant from a station even though there may not be any obstruction to the direct-line path of the signal. Therefore, a good FM antenna should be installed in the most effective manner for best possible FM reception.

FM OUTDOOR ANTENNA

In areas subject to FM multipath interference such as locations behind hills or in the shadow of buildings, an outdoor FM antenna should be used. An outdoor FM antenna is also recommended for the reception of weak and distant FM stations. Connections should be made as follows:

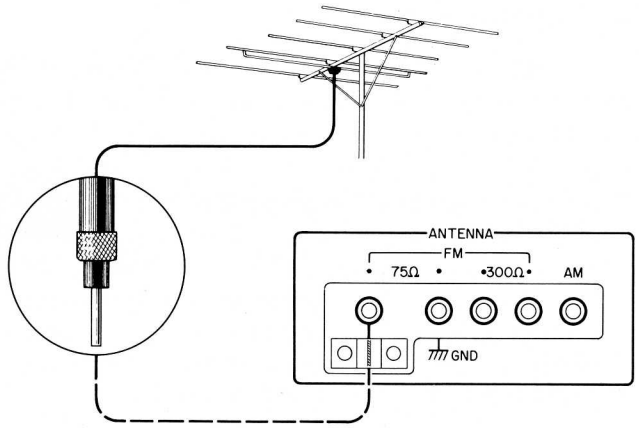
1. 300 ohm twin leads should be connected to the FM 300Ω terminals as shown in fig. right.
2. 75 ohm coaxial cable to the FM 75Ω terminals.

Note:
When a 75 ohm antenna is used for connecting to the antenna terminals, the 300 ohm terminals should not be used, and conversely.

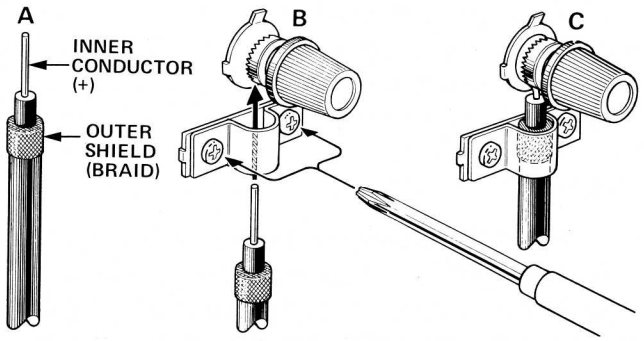
T-TYPE ANTENNA

In areas near the FM station, where signals are strong, stretch the T-type indoor antenna that is supplied, to its maximum, and connect it to FM 300Ω antenna terminals. This antenna should be carefully hung in the direction that provides best reception and clarity. The antenna can then be taped to a wall or ceiling.

Note:
Consult audio dealer for detailed information on FM antennas and coaxial cable installations.

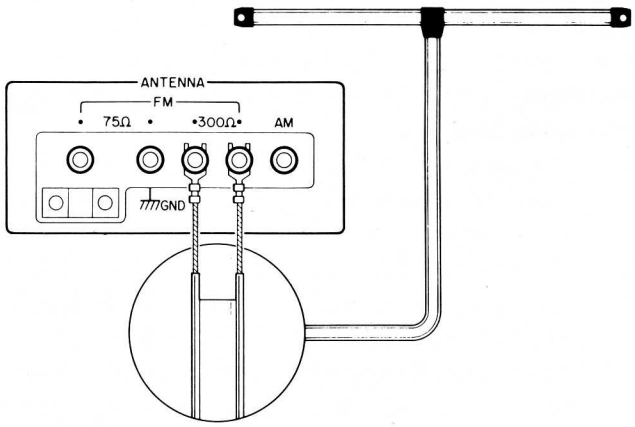


75Ω COAXIAL CABLE



Strip the coaxial cable as shown in (A).
Loosen the screws and connect the cable as shown in (B).
Then tighten all screws for a connection like (C).

COAXIAL CABLE (75Ω) CONNECTION



300Ω FEEDER

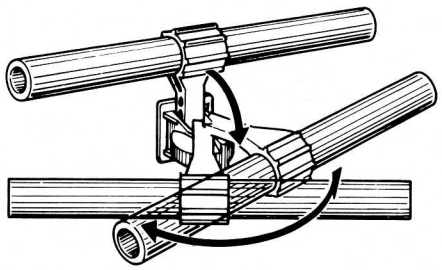
CONNECTING INSTRUCTIONS

AM ANTENNA SETTING

First tune in an AM station. Then, while watching the SIGNAL meter, adjust the AM ferrite bar antenna on the rear panel for the best signal.

Notes:

1. Because the ferrite bar antenna has directive properties, its direction should be adjusted for best reception while listening to a station.
2. In fringe areas or in locations surrounded by steel frame buildings where satisfactory reception cannot be obtained with the ferrite bar antenna, an AM outdoor antenna should be connected to the AM terminal.



Keep the AM ferrite bar antenna away from the rear panel.

AM ANTENNA SETTING

OUTPUT JACKS

VARIABLE

These jacks connect to the stereo amplifier's TUNER or AUX input terminals. The level of these terminals is controlled by the Output Level knob on the front panel.

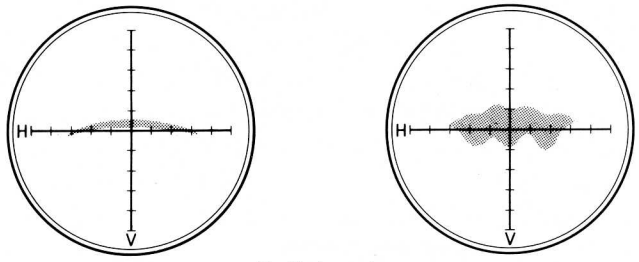
FIXED

These jacks connect to the tape deck Line Input terminals. The signal level from the output terminals cannot be controlled from the KT-7500; this must be done with the tape deck input level controls.

FM MULTIPATH JACKS

This unit is provided with FM multipath jacks through which multipath distortion can be detected. These jacks are connected with an oscilloscope and the antenna is positioned at the optimum height and in the best direction by observing the displayed waveform until distortion can be lowered to a minimum level, operate as follows:

1. Connect the KT-7500 FM MULTIPATH V (vertical) and H (horizontal) output terminals to the respective inputs on the oscilloscope.
2. Tune in an FM broadcast on the KT-7500; the signal waveform will appear on the screen of oscilloscope. Then adjust the antenna height and direction for least multipath reception. This will be indicated by a waveform similar to the one on the left in the figure. The more multipath signals enter, the more the waveform will be distorted as shown on the right in the figure.



H: Horizontal
V: Vertical

DET. OUT JACK

The Horizontal output of the FM MULTIPATH can be used for the purpose of the FM DETECTOR OUT. The FM detector circuit output is made available here so that this tuner will be ready for 4-channel broadcasting developments in the future. When FM discrete 4-channel broadcasting becomes a reality, a simple demodulator connected here will enable you to fully enjoy this coming development.

FM DE-EMPHASIS SWITCH

Before shipment this switch has been pre-set to the appropriate position for the delivery area. Units for the U.S.A. and Canada are set to "75μsec" and other units are set to "50μsec".

Incorrect setting will adversely affect the high frequency range, so check the position before operating this unit. If you are in doubt about the preemphasis used in your area, consult your audio dealer.

Note:

The "25μsec" position should only be selected when this equipment is used with an auxiliary Dolby NR adaptor to receive FM Dolby broadcasts.

OPERATING INSTRUCTIONS

FM AND AM RECEPTION

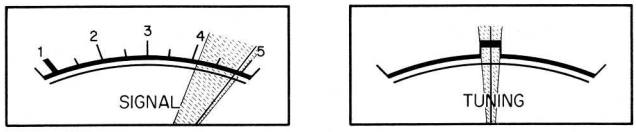
FM RECEPTION

1. Set the SELECTOR switch to FM AUTO.
2. Set the MUTING switch to ON.
   But it affects reception of exceptionally weak FM signals, and should therefore be left off. (For further details, refer to the facing page).
3. Set the IF BAND switch to WIDE.

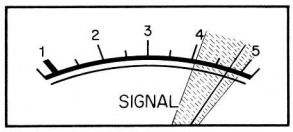
Note:
However, set this switch to NARROW position to increase selectivity against interference from a closely adjacent station.

4. Turn the TUNING knob to select a station. First tune so that the SIGNAL meter needle swings as far to the right as possible, then finish the precise tuning by centering the TUNING meter needle. If the STEREO indicator lamp lights, the broadcast is in stereo; if not, it is monophonic.
5. If you are using a stereo amplifier, set its controls for the desired volume level and tone quality.
6. If continuous high-frequency noise occurs during FM stereo listening, set the SELECTOR switch to position MPX FILTER.

Note:
It may be impossible to eliminate noise from an FM stereo broadcast if the signal is extremely weak. In such a case the relative signal strength can be improved by switching to FM MONO with the SELECTOR switch. While the stereo effect will be lost somewhat, a great deal of the noise can be substantially eliminated in this way.



FM Reception



AM Reception

AM RECEPTION

1. Set the SELECTOR switch to position AM.
2. Turn the tuning knob to select a station. Tune in so that the SIGNAL meter needle swings as far to the right as possible.
3. If you are using a stereo amplifier, set its controls for the desired volume level and tone quality.

POINTS TO BE CHECKED PRIOR TO SERVICING

In initially installing this tuner, improper connections may result in one of the following indications. Their possible causes and corrective measures are listed below to facilitate installation. If you cannot find or correct it, see your audio dealer.

SYMPTOM	PROBABLE CAUSE	CORRECTION
Continuous low frequency buzz. Most noticeable at night on weak signal stations. Poor AM reception.	Interference from electrical appliances or atmospherics. In ferroconcrete buildings or in areas remote from the broadcasting station.	Erecting a 10 meter outdoor antenna and securing good ground conditions should reduce interference considerably. Complete elimination is difficult. An outdoor antenna necessary.
Continuous high frequency whine which increases at night.	TV interference. 10 kHz beat interference from adjacent AM station.	Turn TV off. (Neighboring TV set may also be the cause). Impossible to eliminate from tuner side. Use HIGH Filter to cut off high frequency interference, amplifier side.
Intermittent buzzing or sharp cracking noise.	Lightning interference. Interference from fluorescent lamps. AC plug Connection.	Usually unavoidable in certain areas. Occurs when lamps are on and cannot be helped. Try reversing AC plug connections. Occurs only on certain stations due to high voltage power line and cannot be helped in many areas.
Continuous hiss or buzzing interference with broadcast. Becomes louder during stereo.	Incoming signal too weak at ANT terminal.	Erect outdoor FM antenna if only indoor T-type is used. A 5 or 7 element antenna is necessary if you are located at a considerable distance from the broadcasting station.
Occasional sharp buzzing or crackling noise. FM Automatic Circuit fails to respond to stereo broadcast.	Automobile ignition noise. More noticeable on weak signals. Incoming signal is exceptionally weak.	Erect outdoor FM antenna as far away from roads as practicable. Erect an FM outdoor antenna.

SPECIFICATIONS

FM TUNER SECTION (I.H.F.)

Usable Sensitivity		9.8 dBf (1.7 μV)	
50 dB Quieting Sensitivity			
(Mono)		14.1 dBf (2.8 μV)	
(Stereo)		36.1 dBf (35 μV)	
Signal to Noise Ratio			
(Mono)		75 dB	
(Stereo)		70 dB	
Total Harmonic Distortion		at WIDE	at NARROW
Mono at	**100 Hz**	0.08%	0.1%
	1,000 Hz	0.08%	0.2%
	6,000 Hz	0.08%	0.3%
	15,000 Hz	0.15%	0.15%
Stereo at	**100 Hz**	0.13%	0.4%
	1,000 Hz	0.1%	0.3%
	6,000 Hz	0.1%	0.3%
	15,000 Hz	0.5%	1.5%
Capture Ratio		1.0 dB	2.0 dB
Alternate Channel Selectivity		30 dB	100 dB (400 kHz)
			60 dB (300 kHz)
Stereo Separation			
at 1,000 Hz		50 dB	45 dB
50 to 10,000 Hz		43 dB	38 dB
at 15,000 Hz		40 dB	30 dB
Frequency Response		20 Hz to 15,000 Hz +0.2 dB −1.5 dB	
Spurious Response Ratio		110 dB	
Image Response Ratio		105 dB	
IF Response Ratio		110 dB	
AM Suppression Ratio		60 dB	
Sub Carrier Product Ratio		65 dB	
Antenna Impedance		300 ohms balanced & 75 ohms unbalanced	
FM Frequency Range		88 MHz to 108 MHz	
Output Level			
at 400 Hz 100% Mod	**Fixed**	0.75V,	1.2 kohms
	Variable	0~1.5V,	1.2 kohms
Multipath Output	**Vertical**	0.2V,	5 kohms
	Horizontal	0.3V,	5 kohms
FM DET. Out		0.3V,	5 kohms

AM TUNER SECTION

Usable Sensitivity		14 μV
Signal to Noise Ratio		50 dB
Total Harmonic Distortion		0.5%
Image Rejection		60 dB
Selectivity		35 dB
Output Level	**Fixed**	0.15V
	Variable	0~0.3V

GENERAL

Power Consumption		20 watts
Dimensions		W 16-15/16" (430 mm)
		H 5-7/8" (149 mm)
		D 14-27/32" (377 mm)
Weight	**(Net)**	16.8 lbs. (7.6 kg)
	(Gross)	19.4 lbs. (8.8 kg)

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

NOTE

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