

AM/FM
SYNTHESIZED
STEREO TUNER

Model **700T**

INSTRUCTION MANUAL



INTRODUCTION

Thank you for purchasing our tuner. Because we take great pride in the long tradition of quality components the name Kenwood represents, your purchase of a Kenwood tuner places you in a distinguished family of connoisseurs of superb high-fidelity sound reproduction.

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 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.

Turn the pages and become acquainted with the exciting features of your new tuner features that will remain new for endless hours of listening pleasure.

CONTENTS

MODEL-700T FEATURES	3	CONTROLS AND THEIR FUNCTIONS	8
INTERCONNECTING DIAGRAM	4	OPERATING INSTRUCTIONS	10
CONNECTING YOUR MODEL-700T	5	MODEL-700T SPECIFICATIONS	11

NOTES:

- Unit shipped to the U.S.A. and CANADA are designed to be operated with 120 volts 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 references to such a switch throughout this manual should be disregarded.

- 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.

CAUTION:

It is very important however, to check the Voltage Selector Switch setting and make sure that it corresponds to your line voltage before connecting the power cord into an AC outlet. If the Voltage Selector requires re-setting, follow the directions outlined on page 7.

MODEL-700T FEATURES

1. Adoption of Synthesizer Oscillator in Front-end Circuit:

PLL (phase locked loop), an oscillator locked every 100 kHz, is employed between local oscillator output and crystal oscillator output which is controlled by the variable capacitor and the dial knob.

The stability of this oscillator is comparable with that of precision crystal oscillators, minimizing drifts due to temperature and humidity. This feature affords extreme stability in the operation of Model-700T.

2. Adoption of Low Distortion, High Separation PLL + DSD System:

The use of PLL (phase locked loop) keeps the phase of MPX demodulation signal exactly coincident with that of pilot signal at all times, assuring excellent characteristics against aging and temperature change while improving distortion factor to a great extent as compared with the conventional LC tuning system.

Furthermore, the adoption of DSD (double switching demodulator) uniquely designed by KENWOOD enables the phase correction of main signal and sub-signal without affecting tonal quality, thus completely eliminating the chance of phase deviation.

The use of DSD, together with PLL, has assured more excellent separation effect.

3. Adoption of PNBS (Pulse Noise Blanker System):

Quality reception is always assured with PNBS which eliminates pulse noise such as ignition noise from motor vehicle.

The use of PNBS does not affect the tonal quality.

This system detects AM noise component contained in FM IF when the signal strength is low and also detects the noise component contained in FM detected audio signal when the signal strength is high, so that only the noise (impulse noise) above the specified level is detected.

The detected noise component is eliminated by the use of delay circuit where the impulse noise is synchronized with the signal to control the gate of FET in the output circuit.

Thus, the unpleasant pulse noise, which has so far been considered to be unavoidable, can be fully eliminated regardless of whether the signal strength is low or high.

4. Adoption of Ready-to-turn Tuning Indicator (FM station):

The FM Station Indicator (green) lights up at exactly tuned point. The indicator also glows red 100 kHz before and after the frequency of desired station.

This feature completely eliminates the need for bothersome tuning as found in conventional tuning meters.

5. Adoption of Phones Amplifier with Level Adjuster:

A differential amplifier circuit is employed in the 1st stage. It is a regular type amplifier having output stage of OCL system, being most suitable for air-check with the tuner alone or for private listening with headphones.

The level adjuster permits the user to adjust the volume for the level suited to the type of headphone used.

6. Other Features:

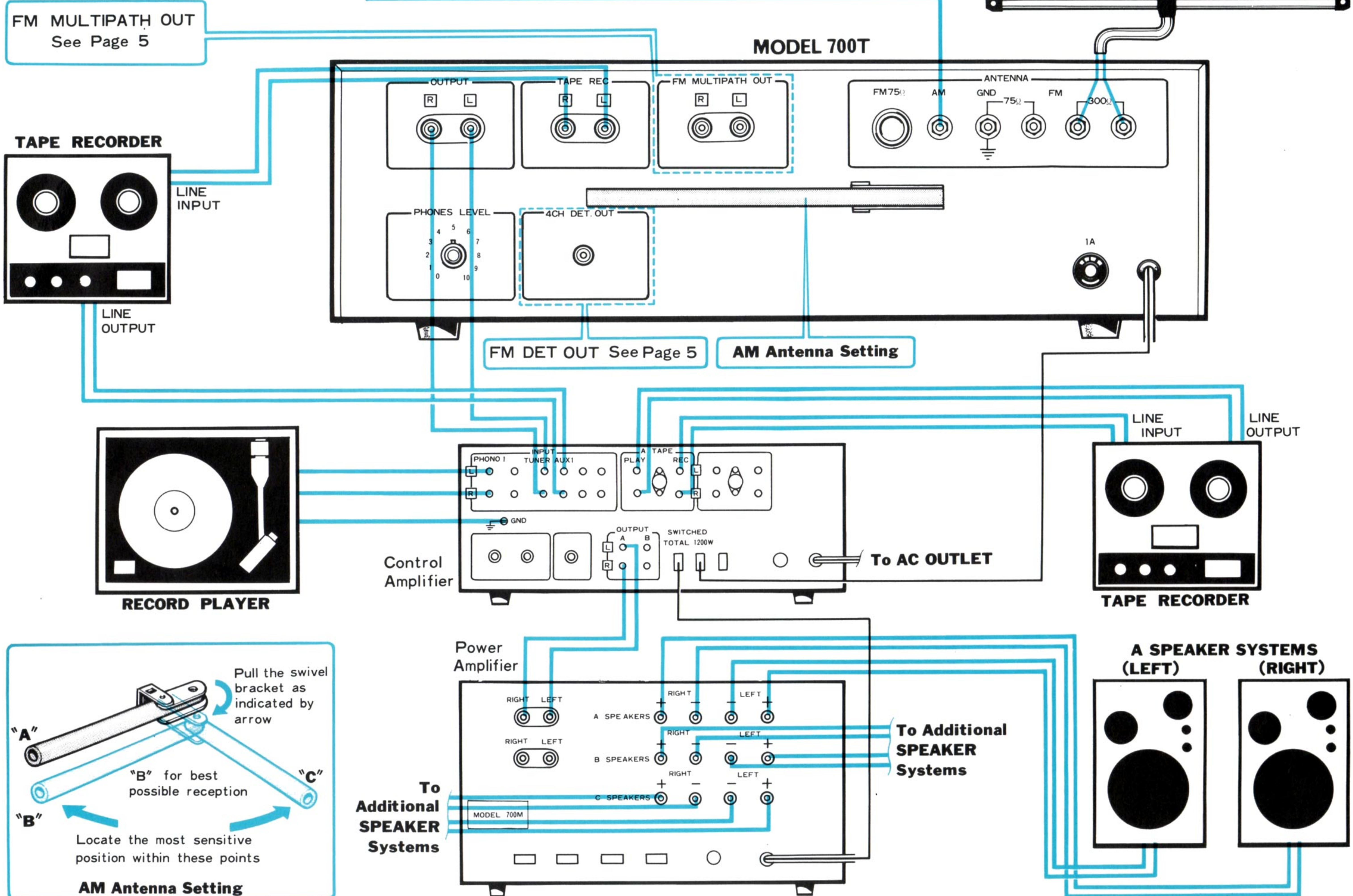
- * Multipath detector meter
- * Linear signal meter
- * FM muting 2-step selector
- * MPX noise filter
- * FM STEREO ONLY position
- * 4CH DETECTOR OUT
- * Dimmer switch

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

INTERCONNECTING DIAGRAM

EXTRA AM ANTENNA FOR LONG DISTANCE OUTDOOR OR INDOOR

FM300Ω INDOOR ANTENNA



CONNECTING YOUR MODEL-700T

OUTPUT

Signals from the output jacks are fed to the amplifier. Connecting cables should be plugged to the amplifier's TUNER or AUX jacks. Shielded cables are terminated at both ends with RCA type phone plugs which are supplied with this tuner.

If in your particular installation longer connecting cables are necessary, they may be used without fear of excessive high frequency losses as your Model-700T has a low impedance. However, it is preferable to keep the length of these connecting cables within three or four yards whenever possible.

TAPE RECORDER

You may record AM and FM broadcasts by connecting the TAPE REC output jacks of the tuner to the input of the tape recorder.

FM MULTIPATH OUT

FM signals radiate in a straight line path like light rays and are reflected when they encounter obstacles. When a reflected signal and a direct path signal are received simultaneously at the antenna, one affects the other causing what is known as multipath distortion. This adversely affects the quality of reception.

To minimize such distortion, an antenna with good directional properties should be pointed toward the broadcasting station or in the direction in which the least reflected signals are received, which would be that point where sound quality is best. However, since the optimum antenna direction is not always that which results in the strongest signal, it is often difficult to obtain correct antenna orientation for minimum distortion merely by observing the SIGNAL meter or listening to a broadcast.

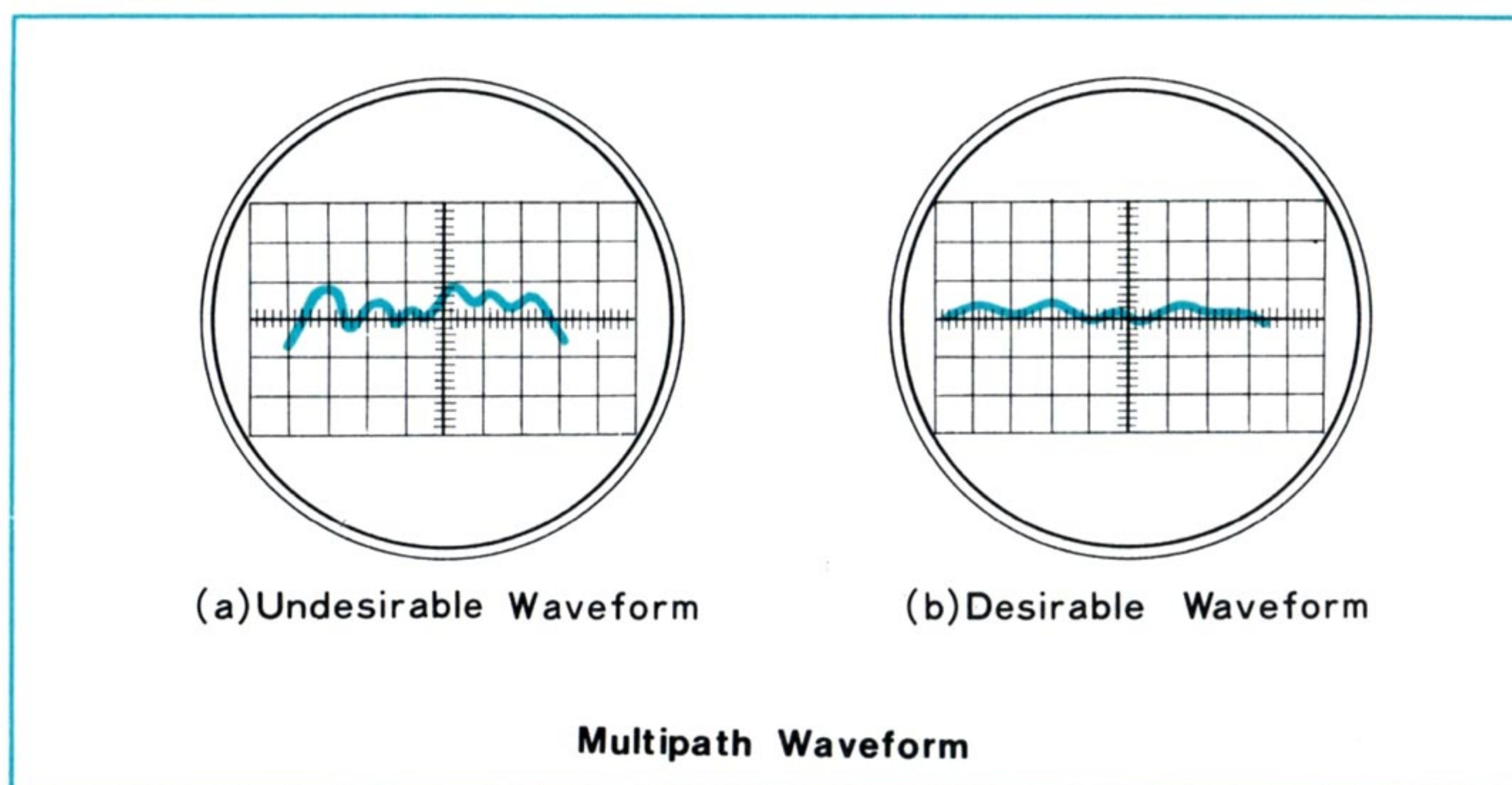
This tuner is equipped with a new SIGNAL/MULTIPATH meter and a multipath push switch which provide a simple way to detect multipath incoming signals and eliminate them. This is explained under "MULTIPATH switch" on page 9. This feature eliminates the need for an oscilloscope and the highly technical knowledge required with conventional tuners to detect multipath signals.

Those who have a general oscilloscope may connect it as explained below and actually see the incoming FM waveform, and turn the antenna to the setting which results in the least distorted waveform.

The Vertical INPUT and the Horizontal INPUT of the general oscilloscope should be connected to the tuner's MULTIPATH OUT jacks, respectively. The antenna should be oriented to produce a wave shape as shown in Figure below. A higher gain antenna with sharper directional properties should be tried if a similar waveform cannot be obtained.

4CH DET 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.



CONNECTING YOUR MODEL-700T

FM ANTENNA

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 signal. Therefore, a good FM antenna should be installed in the most effective manner for best possible FM reception. 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 the FM 300 Ω ANTENNA terminals. This antenna should be carefully hung in the direction that provides best reception with minimal undesirable reflection.

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; connect the outdoor antenna's twin leads to the tuner — 300 ohm twin leads should be connected to the 300 ohm FM antenna terminals, and 75 ohm leads to the 75 ohm terminals.

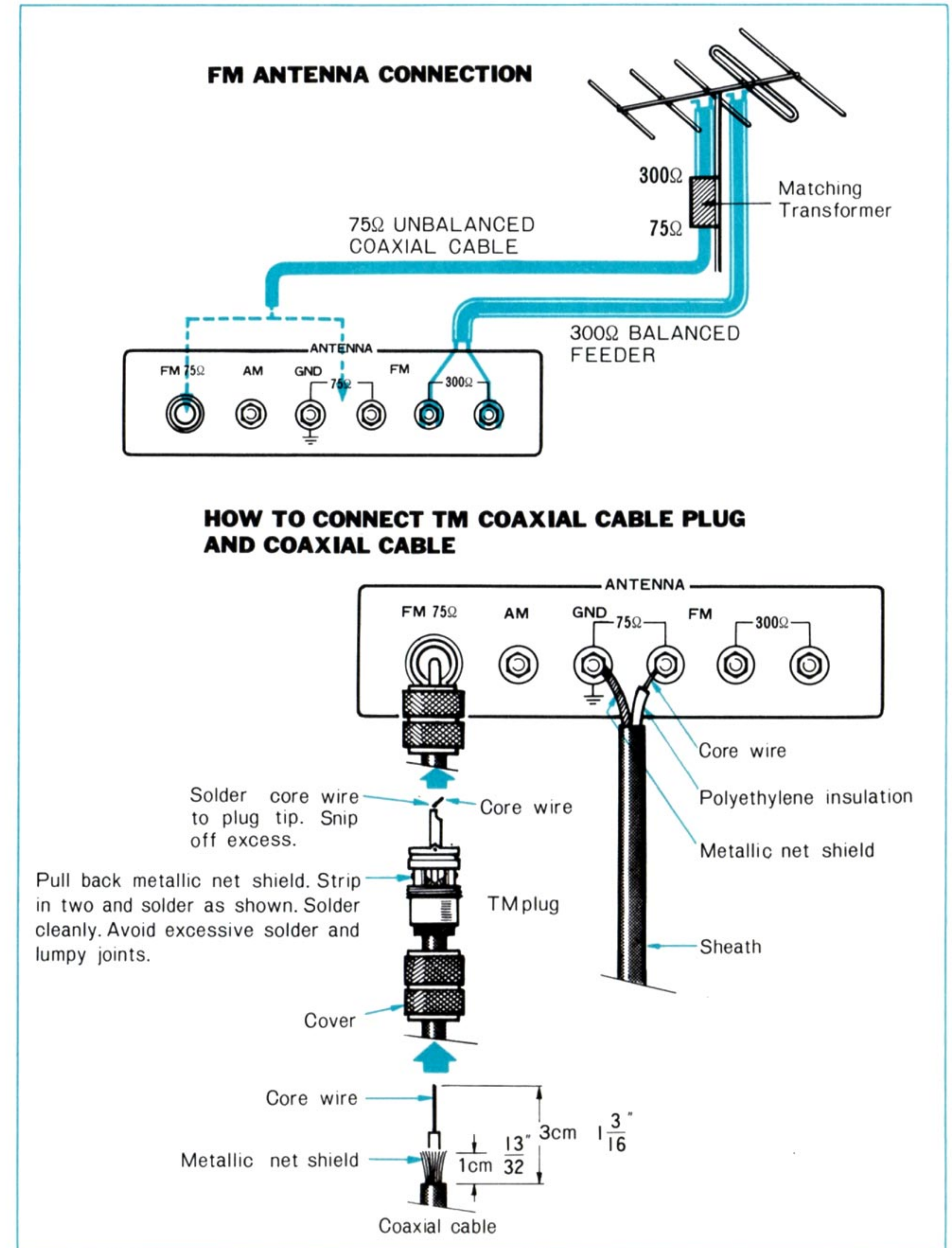
NOTE:

1. In order to determine the position of the antenna which results in minimum multipath interference, use the SIGNAL/MULTIPATH meter together with the MULTIPATH pushbutton.
2. Another more accurate method is to connect an oscilloscope to the FM MULTIPATH OUTPUT jacks and adjust the antenna while watching the actual wave shape on the scope screen.

AM ANTENNA

The ferrite stick antenna mounted at the rear of the tuner will provide satisfactory reception of local stations with strong signals. Because the loopstick antenna has directive properties, its direction may be adjusted for best reception while listening to a station. AC cords laid adjacent to AM ferrite stick antenna may interfere with reception. Keep them away as far as possible from the ferrite stick antenna.

In fringe areas or in locations surrounded by steel frame buildings where satisfactory reception cannot be obtained with the ferrite stick antenna, an AM outdoor antenna should be connected to the AM terminal.



MAINTENANCE

AC VOLTAGE SELECTION AND POWER FUSE

The Model-700T operates on 110 ~ 120 volt AC or 220 ~ 240 volt AC. The AC Voltage Selector Switch on the rear panel is set to the voltage that prevails in the area to which the tuners are shipped. Before operating this tuner, 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 Switch to the opposite side. Then re-attach the stopper plate to the other side.

When the position of the AC Voltage Selector Switch is changed, it is also necessary to change the power fuse.

If the power fuse fails, remove blown fuse and replace with the same type fuse of the same capacity. Any trouble in the power supply circuit will cause the fuse to blow again. In such a case, consult a qualified serviceman.

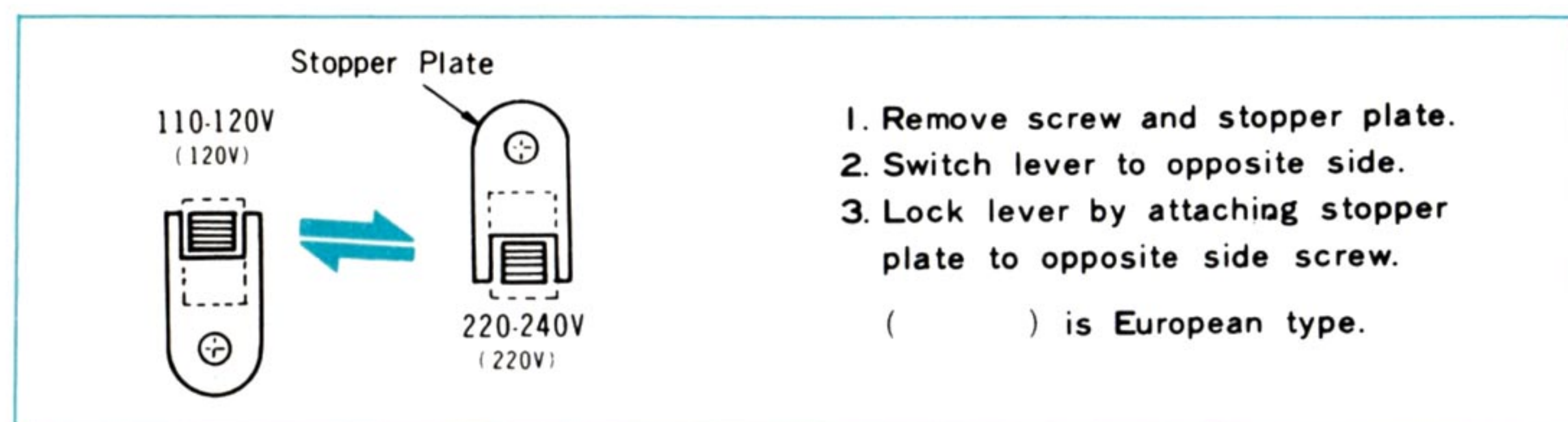
NOTES:

1. Always disconnect power supply before replacing a fuse.
2. Our warranty does not cover damage caused by excessive line voltage due to improper setting of the AC Voltage Selector Switch.

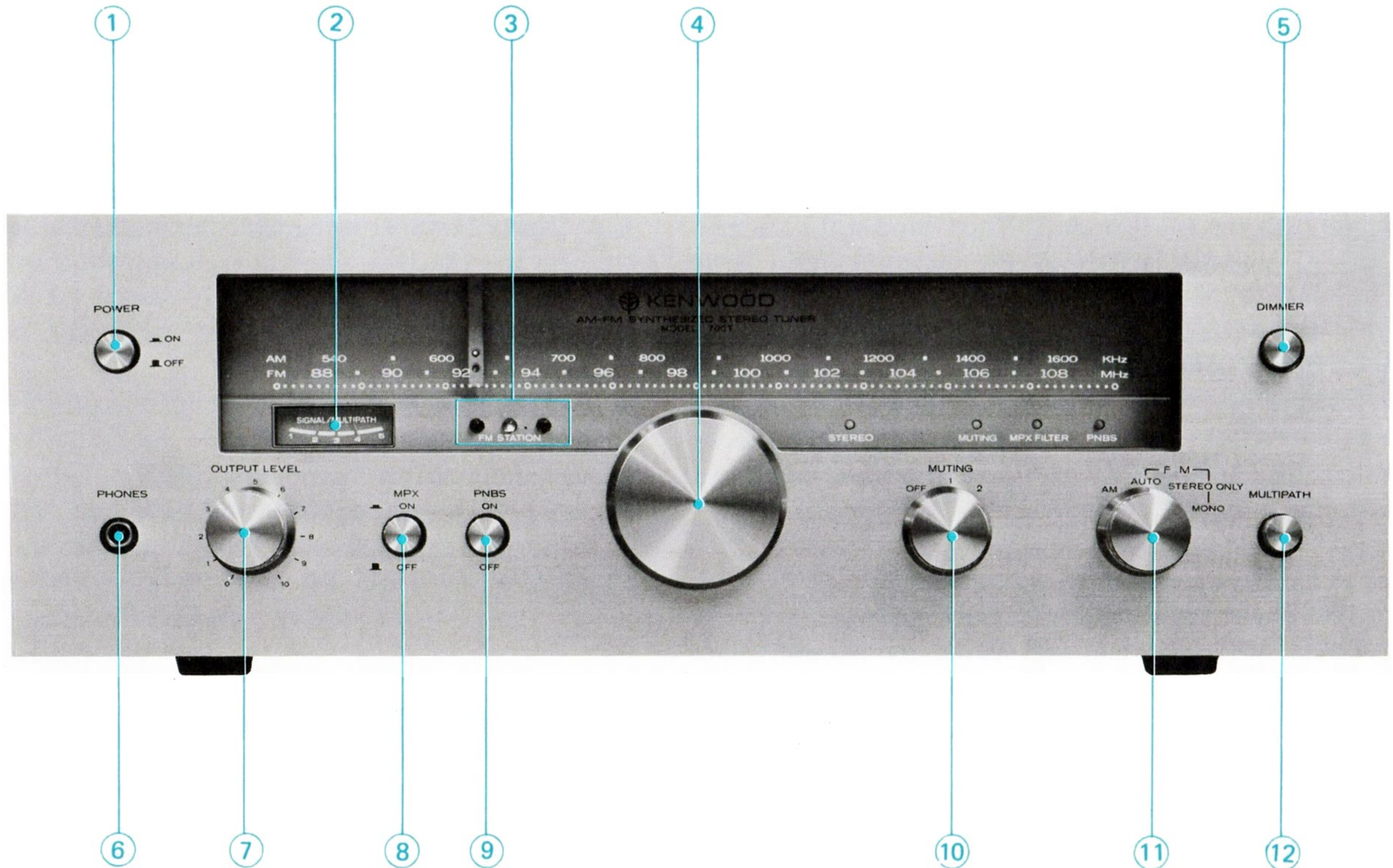
CONCERNING TRANSISTORS

Transistors differ fundamentally from radio vacuum tubes and require special attention to ensure their full performance capabilities. Given proper care, transistors will provide years of practically trouble-free performance.

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



CONTROLS AND THEIR FUNCTIONS



PHONES LEVEL CONTROL

When headphone is plugged into the PHONES jack, this knob controls the response level.

CONTROLS AND THEIR FUNCTIONS

1. POWER Switch

Push the POWER switch to turn the tuner on. Push it again to turn the tuner off.

2. SIGNAL/MULTIPATH Meter

SIGNAL — This meter indicates the intensity of the incoming FM or AM signal. Pinpoint tuning for any broadcast is indicated by a maximum deflection of this signal meter.

MULTIPATH — When the MULTIPATH switch is pushed in during reception of an FM broadcast this meter helps to detect FM multipath interference. Antenna direction should then be adjusted for maximum deflection which is the best position for FM reception with minimum distortion.

3. FM STATION Indicator

The FM Station Indicator is used in lieu of a tuning meter. It includes 3 light emitting diodes (LED). The left and right diodes glow red and the one in the middle glows green; the red light indicates ± 100 kHz detuned point and the green light the exactly tuned point.

4. TUNING Knob

The TUNING Knob selects the desired AM or FM station signal. Adjust it for maximum deflection of the SIGNAL meter and FM Station Indicator (green) lights up as you listen to the sound output from the speaker.

5. DIMMER Switch

The Dial Indication pilot lamps can be dimmed if desired by depressing this button.

6. HEADPHONES Jack

For listening through stereo headphones, connect the plug of the headphones to the Headphones Jack.

The exclusive, built-in amplifier allows you to enjoy FM programs without the need for using an external amplifier.

It is suggested that a stereo headphones having 4 to 16 ohms of impedance be used.

7. OUTPUT Level

This knob adjusts the output level of the tuner.

Turn clockwise to increase. Adjust this control in accordance with the gain of your component amplifier.

Output level of the TAPE REC jacks is not affected by the LEVEL control.

8. MPX FILTER Switch

Unlike FM monaural reception, high frequency noise may sometimes be encountered when receiving FM stereophonic broadcasts.

The MPX FILTER in this tuner effectively cuts such noises. This switch has

nothing to do with monaural reception. The MPX FILTER Indicator (LED) lights when this switch is pushed in.

9. PNBS Switch

Pressing this switch will eliminate the pulse noise such as the ignition noise generated from motor vehicle.

Unlike the conventional types of tuners, the unit always assures stabilized FM reception without noise regardless of whether the signal strength is low or high.

10. MUTING Switch

This switch silences interstation noise on the FM band. Position 1 completely eliminates this noise. This switch may also erase signals of weak and distant FM stations, so it should be turned OFF when you wish to tune in such stations.

If you wish to listen only to clear and strong FM stations and have no need to receive distortion-prone weak and distant FM stations, set this Muting switch to Position 2.

This will completely eliminate all weak and distant stations.

The MUTING indicator (LED) will light up whenever this switch is set to Positions 1 or 2.

11. SELECTOR Switch

AM: For AM reception.

FM AUTO: For reception of both FM monaural and stereo signal. Automatic switching is performed between FM monaural and stereo sources. When an FM stereo broadcast is tuned in, the STEREO indicator (LED) lights up.

FM STEREO ONLY: Use this position to select only FM stereo broadcasts. FM monaural broadcasts will not be heard.

FM MONO: For FM monaural reception.

When reception is noisy for very weak stereo signals from distant stations, it is recommended that the SELECTOR switch is set to MONO and the broadcast is received monophonically.

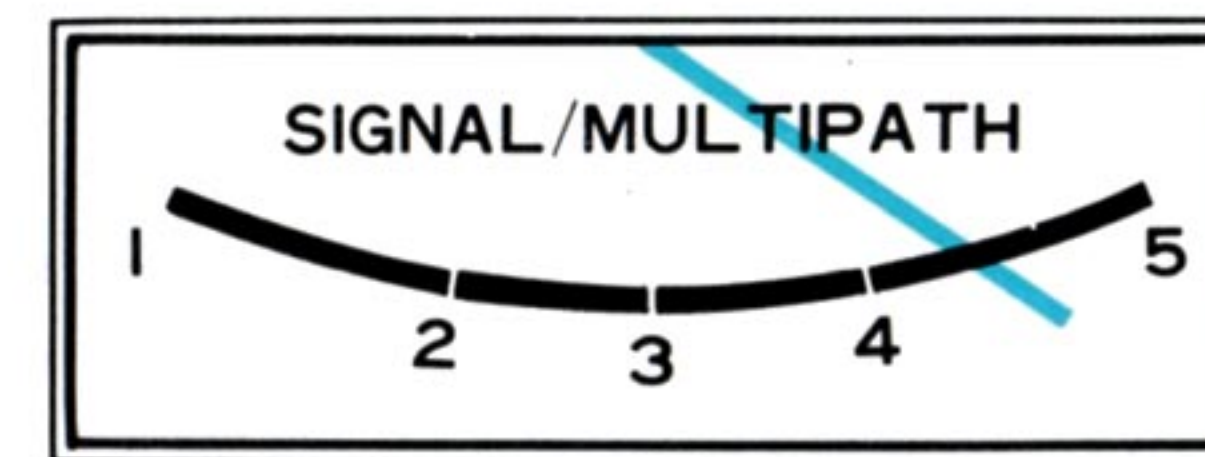
12. MULTIPATH Switch

The SIGNAL/MULTIPATH meter functions as a multipath meter when the MULTIPATH pushbutton is pushed in. Tune in an FM stereo station, depress the MULTIPATH pushbutton and adjust the antenna direction for maximum deflection of the MULTIPATH meter. This indicates the best antenna position which offers the least multipath interference. This adjustment should be made only when an FM stereo broadcast is being received. The MULTIPATH meter does not function when an FM monaural or AM broadcast is being received.

OPERATING INSTRUCTIONS

AM-FM TUNING HINTS

1. Refer to the diagram on page 4 and examine the connections of AM-FM antenna, amplifiers, source, etc.
2. Set the VOLUME control of the amplifier to the minimum position and turn the amplifier on. Then press the POWER switch of the Model-700T. (If the Model-700T is connected to the SWITCHED outlet of the amplifier and is already switched on, it can be switched on and off only with the POWER switch of the amplifier).
3. On the amplifier's side, set the input selector switch to the TUNER position.
4. Set the LEVEL control of the Model-700T to "10" and listen to your desired broadcast (AM or FM AUTO).
5. If you listen to the AM broadcast, set the SELECTOR switch to the AM position and turn the TUNING knob until the SIGNAL meter shows a maximum deflection at a certain tuning point. Turn the VOLUME control of the amplifier gradually to increase the gain, and you will be able to hear the AM broadcast.
6. If you listen to the FM broadcast, set to the SELECTOR switch to the AUTO position.
Turning the tuning knob will deflect the "S" meter at the selected station where the light emitting diode in the FM Station Indicator lights up. Fine adjust the tuning knob until the green diode is most brightened (brightness is changed in two steps). This is the best tuned point with minimum distortion. To select another station for the best reception, simply follow the same procedure. Turn the VOLUME control of the amplifier gradually to increase the gain, and you will be able to hear the FM broadcast.
7. The LEVEL control on the front panel of the Model-700T is used to adjust this tuner's output level to that of other sources that may be connected to an amplifier. For example, this control is adjusted so that speaker volume will be the same when an amplifier's Input Selector switch is switched back and forth between PHONO and TUNER.



Signal Strength/Multipath Meter



Fine adjust the tuning knob until the green diode is most brightened (brightness is changed in two steps.)

Signal Meter and FM Station Indicator

MODEL-700T SPECIFICATIONS

FM TUNER SECTION

Usable Sensitivity:	1.8 μ V
40dB Quieting Sensitivity:	1.8 μ V
50dB Quieting Sensitivity:	4 μ V
Ultimate Signal to Noise Ratio:	73dB at 200 μ V input
Ultimate T.H.D. at 80 μ V Input:	0.15% at 1kHz
Image Rejection:	100dB
Frequency Response:	20Hz ~ 15kHz +0dB, -1.5dB
Capture Ratio:	1.3dB
AM Suppression:	65dB
Selectivity (IHF ALT channel):	100dB
SCA Rejection:	65dB

FM STEREO

50dB Quieting Sensitivity:	45 μ V
Stereo Separation:	40dB at 100Hz 45dB at 1kHz 35dB at 10kHz
Sub-Carrier Rejection:	65dB
Ultimate T.H.D. at 800 μ V Input	0.25% at 1kHz

AM TUNER SECTION

Usable Sensitivity (IHF):	13 μ V
Signal to Noise Ratio:	50dB at 1mV input
Image Rejection:	70dB
Selectivity (IHF):	40dB
IF Rejection:	70dB
Output Voltage:	
FM (at 400Hz 100% modulation)	1.5V, 100 ohms
AM (at 400Hz 30% modulation)	0.15V, 100 ohms

Multipath Output V&H:

0.13V, H 130k ohms
V 30k ohms

4 Channel Detect Out:

0.15V, 10k ohms

GENERAL

Antenna

FM:

300 ohms balanced & 75 ohms unbalanced.

AM:

Built-in ferrite bar antenna
External antenna terminals

Switches:

Selector (AM, FM AUTO, STEREO ONLY, MONO), Muting, PNBS, MPX Filter, Multipath, Dimmer.

Others:

Output Level, Phones Jack, Phones Level, FM Station Indicator

Power Requirement:

50/60Hz, 110 ~ 120V/220 ~ 240V

Power Consumption:

85W

Dimensions:

W 17-5/16" (440 mm)
H 5-1/2" (140 mm)
D 11-13/16" (300 mm)

Weight:

29.5 lbs (13.4 kg)



© 5415 PRINTED IN JAPAN B50-1200-00 (KPUMWXL) (G)