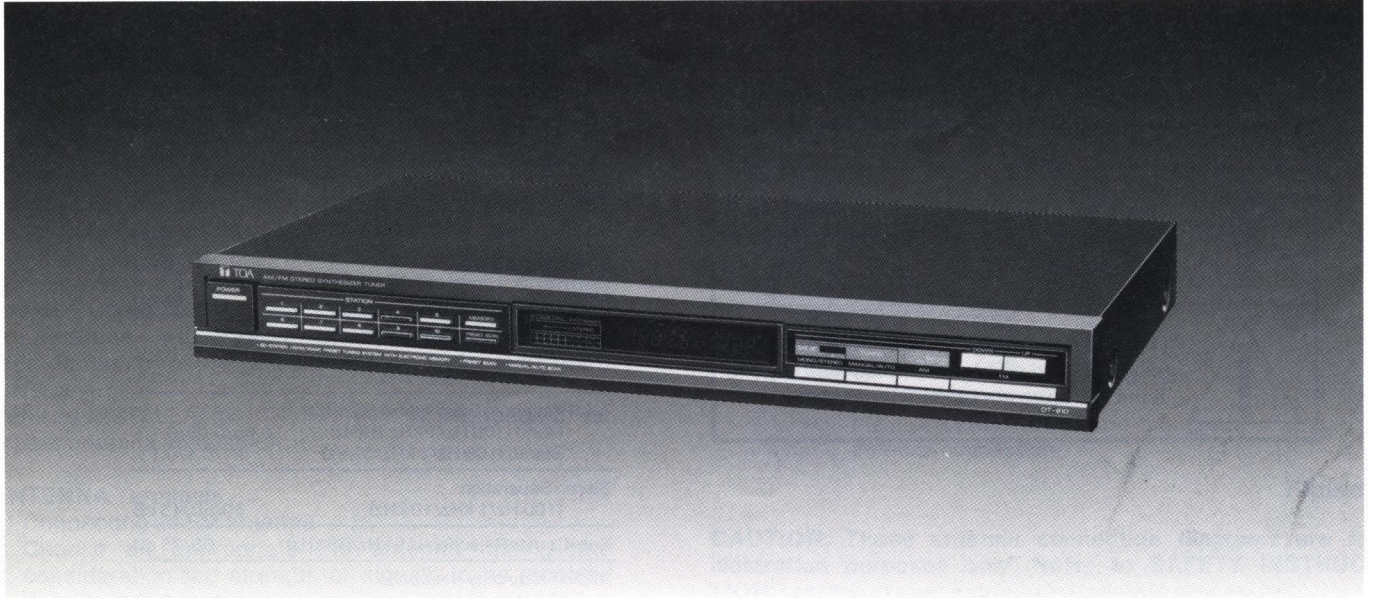


# AM/FM STEREO SYNTHESIZER TUNER



## DT-910



### Features

- 1 Quartz locked frequency synthesizer digital tuning system
- 2 High sensitivity and stable reception
- 3 Presetable memory for each 10 FM and 10 AM stations (total 20 stations)
- 4 Automatic next station scanning mode
- 5 Stereo/monaural output

### General Description

The Toa DT-910 is a stereo AM/FM tuner with capabilities of highly sensitive reception and stable operation. It employs a quartz locked frequency synthesizer digital tuning system. A maximum of 20 stations (10 each of AM and FM stations) can be preset. The automatic next station scanning function allows the DT-910 to search for a station that can be received and to automatically tune in that station. The output is switchable for stereo and monaural.





Toa Electric Co., Ltd.  
KOBE, JAPAN



If You Didn't Get This From My Site,  
Then It Was Stolen From...

[www.SteamPoweredRadio.Com](http://www.SteamPoweredRadio.Com)

1426-4119-34007  
Printed in Japan

## SPECIFICATIONS

|  |  |   |
|--|--|---|
|   | <b>CAUTION</b><br>RISK OF ELECTRIC SHOCK. DO NOT OPEN! |  |
| <b>CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</b> |  |   |

|   |   |
|---|---|
|  | This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.                 |
|  | This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit. |

*THIS TUNER EMPLOYS A QUARTZ LOCKED FREQUENCY SYNTHESIZER DIGITAL TUNING SYSTEM.*

*THIS TUNING SYSTEM IS DESIGNED TO TUNE ONLY TO THE AM AND FM BROADCAST STATION FREQUENCIES ASSIGNED FOR THE USA BY THE FCC (FEDERAL COMMUNICATIONS COMMISSION) AS IN EFFECT 1 JAN 1988.*

### Note to CATV system installer:

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

### FM SECTION

|   |                       |
|---|-----------------------|
| Usable Sensitivity                          |                       |
| Mono  | 1.9 $\mu$ V/10.76 dBf |
| Stereo                                      | 5.0 $\mu$ V/19.17 dBf |
| 50 dB Quieting Sensitivity                  |                       |
| Mono  | 3.5 $\mu$ V/16.07 dBf |
| Stereo                                      | 55 $\mu$ V/40.0 dBf   |
| Signal-to-Noise Ratio                       |                       |
| Mono  | 75 dB                 |
| Stereo                                      | 70 dB                 |
| Capture Ratio                               | 1.0 dB                |
| Alt. Channel Selectivity ( $\pm$ 400 kHz)   | 70 dB                 |
| Image Response Ratio                        | 75 dB                 |
| Spurious Response Ratio                     | 100 dB                |
| IF Response Ratio                           | 110 dB                |
| AM Suppression Ratio                        | 60 dB                 |
| Total Harmonic Distortion at 50 dB Quieting |                       |
| Mono  | 0.3 %                 |
| Stereo                                      | 0.4 %                 |
| Total Harmonic Distortion at 65 dBf         |                       |
| Mono (100 Hz/1 kHz/6 kHz)                   | 0.05/0.05/0.1 %       |
| Stereo (100 Hz/1 kHz/6 kHz)                 | 0.1/0.1/0.1 %         |
| Stereo Separation (100 Hz/1 kHz/10 kHz)     | 50/50/45 dB           |
| Sub-Carrier Rejection (19 kHz/38 kHz)       | 65/75 dB              |
| Audio Frequency Response (20 Hz – 15 kHz)   | $\pm$ 1.0 dB          |

### AM SECTION

|                       |               |
|-----------------------|---------------|
| Usable Sensitivity    | 600 $\mu$ V/m |
| Selectivity           | 45 dB         |
| Signal-to-Noise Ratio | 55 dB         |
| Image Response Ratio  | 45 dB         |
| IF Response Ratio     | 65 dB         |

### GENERAL

|                               |                                |
|-------------------------------|--------------------------------|
| Power Requirements (50/60 Hz) | 120 VAC $\pm$ 10 %<br>12 Watts |
| Dimensions (WxHxD)            | 17.33" x 2.25" x 11"           |
| Weight (approx.)              | 6.2 lbs.                       |

Specifications are subject to change without notice.

**WARNING:** TO AVOID THE HAZARDS OF FIRE OR ELECTRICAL SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR OTHER MOISTURE.

**IMPORTANT . . .** This Stereo Tuner was developed by TOA to give you many years of enjoyment. Please read the following instructions carefully. They have been prepared to assist you during the initial set-up procedure and to assure you of optimum performance at all times.

*THE WARRANTY ON THIS UNIT DOES NOT COVER DAMAGE CAUSED BY MISHANDLING OR MISUSE.*

# CONNECTING THE TUNER

**CAUTION:**

- Do not plug the power cord into an AC wall outlet until after all connections have been made.
- Be sure to make the correct connections paying attention to the L (left channel) and R (right channel) marks. Connect the lead wires securely. Loose connections will result in unsatisfactory sound reproduction or cause noise problems. Refer to Figure 6 on Page 4.
- Refer to INSTALLATION OF FM ANTENNAS (page 5) for proper antenna installation.

**1 ANTENNA Terminals . . .**

- 1) Connecting an FM antenna
 

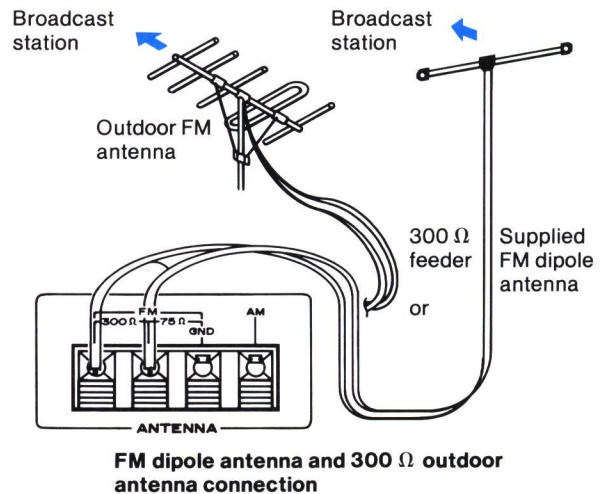
Choose an appropriate FM antenna, taking into consideration the strength of signals to be received and the prevailing conditions for FM reception. (See page 5.)

  - Dipole antenna  
Connect the dipole antenna supplied with the tuner to the ANTENNA terminals marked FM 300 Ω (Figure 1) or . . .
  - Outdoor antenna with 300 Ω feeder  
Connect the feeder to the ANTENNA terminals marked FM 300 Ω (Figure 1).
  - Outdoor antenna with 75 Ω coaxial cable  
To minimize noise interference from motor vehicle engines and high tension power lines, the use of a 75 Ω coaxial cable is recommended. Connect it to the FM 75 Ω terminals. See Figure 2 and Figure 3.

**NOTE:**

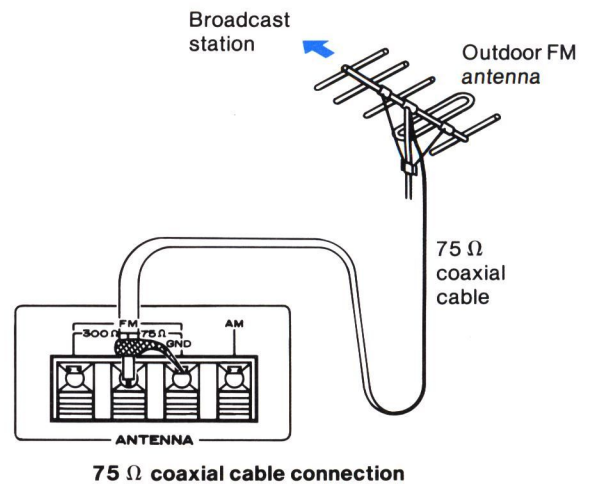
In weak-signal areas, the use of an outdoor FM antenna and 75 Ω coaxial cable is necessary for good FM reception.

- 2) Outdoor single-wire antenna for AM reception  
For the reception of faint AM signals in a remote area, or inside a ferro-concrete building, the installation of a single-wire outdoor antenna is recommended. Spread an insulated wire about 30 feet in length as illustrated (Figure 4). An antenna of this kind will pick up radio waves too weak for the loop antenna to receive.  
A single-wire antenna stretched along an eave of a house will also produce good results. The indoor end of the antenna should be connected to the ANTENNA terminal marked AM.
- 3) GND (Ground) connection  
When installing an outdoor AM antenna, connect a ground wire to the antenna terminal marked GND.

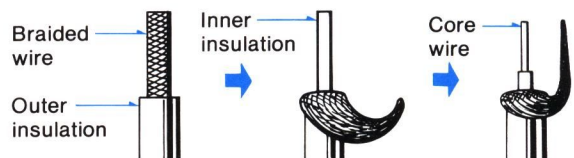


**Figure 1**

**CAUTION:** These antenna connection diagrams are for illustration purposes only. Refer to SAFETY INSTRUCTIONS for the proper antenna installation procedures.



**Figure 2**



**Figure 3**

- (1) Strip the braided wire for a distance of about 1.1" by cutting off the outer insulation.
- (2) Untwist and fold back the braided wire. Strip the core wire by taking off the inner insulation for a distance of about 0.8".

## 2 Loop Antenna . . .

The tuner is equipped with a loop antenna for the reception of AM radio programs. Unless radio signals are too weak, no external antenna is necessary. When listening to AM broadcasts, adjust the position of the loop antenna for the best reception (Figure 5). When satisfactory reception cannot be obtained, try mounting the antenna on the supplied antenna holder. Use the supplied screws to attach the antenna holder to the back of the component cabinet or the wall, where good reception can be obtained.

Keep all speaker, audio and power cables away from the loop antenna.

## 3 OUTPUT Connections . . .

Connect the output cable to the AUX input jack (-20 to 0dBv, 50kΩ) of the amplifier.

When the 900 Series amplifiers are used, connect the stereo-mono conversion cable (supplied with unit) to the U-01R or U-11R AUX input module, or to the AUX input jack of the BG-10 or A-901A, or to the DIRECT INPUT jack of the P-906A, P-912A or P-924. When using the 500 Series amplifiers, connect the conversion cable to the AUX input jack of the amplifier.

The muting circuit to suppress interstation noise does not work unless the tuner is put in the stereo mode. (See item 4 in page 6.)

## 4 AC (Power cord) . . .

After completing all the connections, make sure that the POWER switch on the front panel of the tuner is set to OFF. Then plug the power cord into an AC outlet.

### NOTE:

Grasp the power cord by the plug when disconnecting it from the power source. Do not pull on the cord itself.

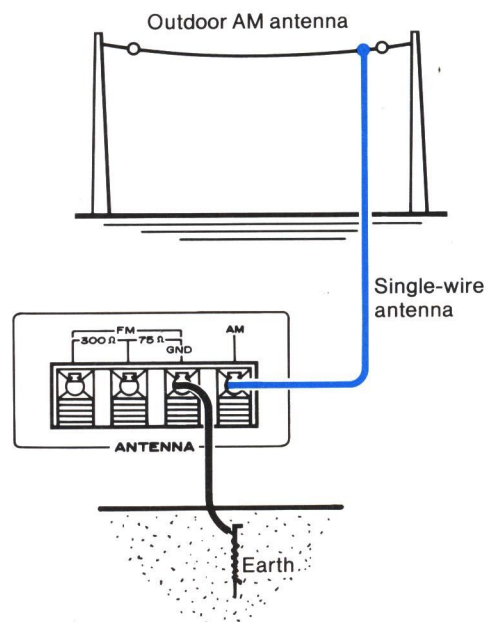


Figure 4

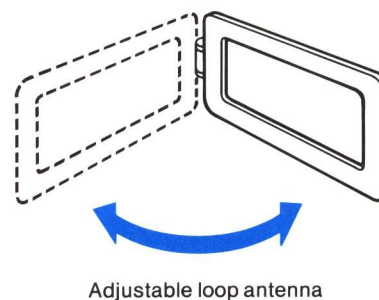


Figure 5

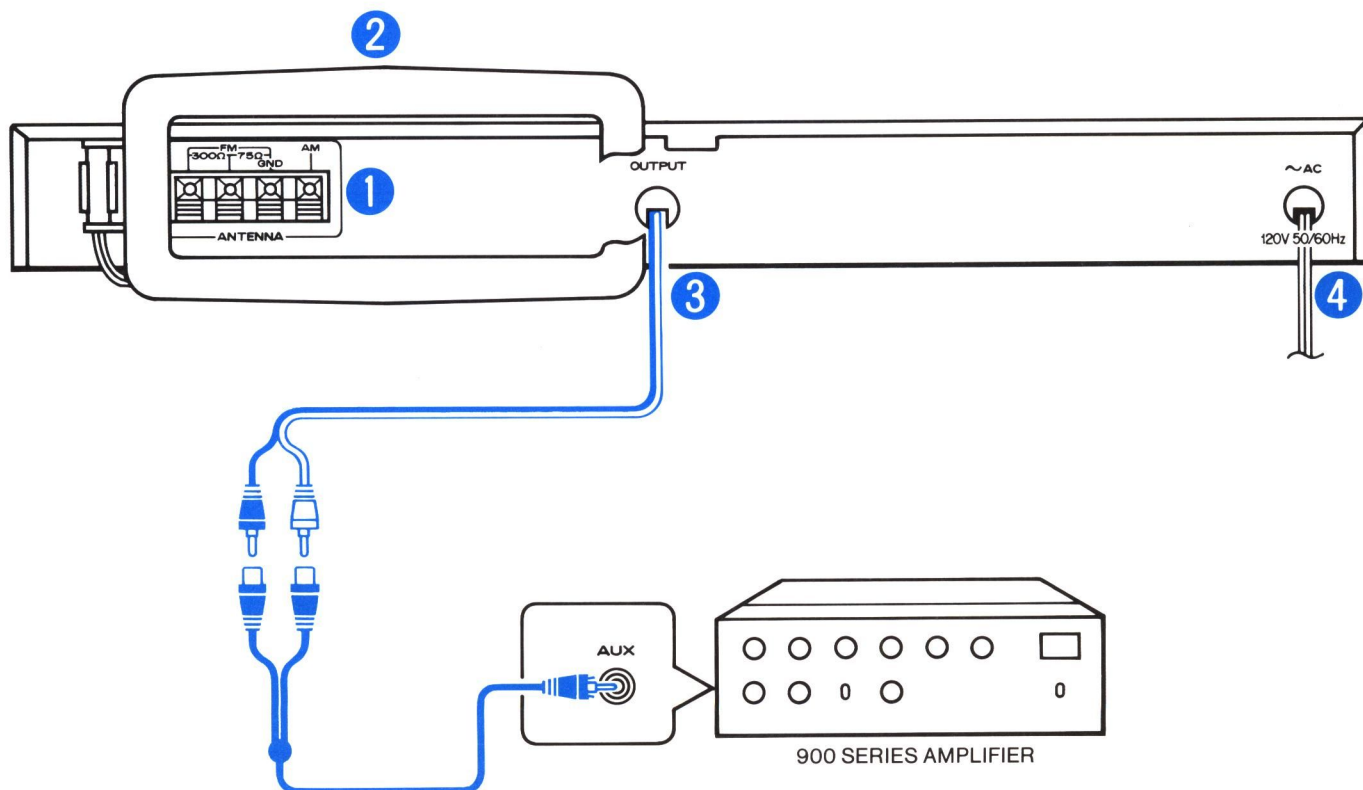


Figure 6

# INSTALLATION OF FM ANTENNAS

For the best FM sound quality, it is necessary to install an appropriate type of antenna. Consideration should be given to the signal strength of the broadcast station and the surrounding conditions.

## SELECTION OF AN FM ANTENNA

1. With nearby FM stations:  
Use the dipole antenna supplied with the tuner for the reception of local stations.

### NOTE:

Every antenna has a directional characteristic (its ability to pick up signals varies according to its orientation). Spread the T-section of the dipole antenna. Rotate it in order to determine the best signal-receiving position and then install it in that position.

2. In areas relatively near FM stations:  
In case the supplied dipole antenna fails to eliminate noise interference, or if you want to pick up signals from distant stations, install a multi-element outdoor antenna.

### NOTE:

Generally, the sensitivity of an outdoor FM antenna corresponds to the number of its elements. This should be the criterion for the selection of an FM antenna.

3. Directional characteristic of an outdoor FM antenna:  
An increase in the number of elements not only improves the sensitivity of the antenna but also enhances its directional characteristics. This means that such an antenna has to be positioned accurately for the best reception of FM radio waves.

## MULTI-PATH DISTORTION

A nearby mountain or a high-rise building reflects FM radio waves, which interfere with the waves coming in directly. Noise and sound distortion caused by this phenomenon is known as multi-path distortion.

Multi-path distortion can be considerably reduced by taking advantage of the directional characteristic of a multi-element FM antenna and by using an antenna rotor.

## GENERAL REMARKS ON FM ANTENNAS FOR OUTDOOR INSTALLATION

Keep the following in mind when installing an FM antenna outdoors:

- (1) Install the antenna away from road traffic and place the antenna as high above the ground as possible.
- (2) Determine the best antenna position in relation to nearby buildings and trees.
- (3) Keep the antenna away from high-voltage power lines.

# CONTROLS AND OPERATION

This section describes the tuner's controls in the order in which you would normally use them. Follow the instructions in a step-by-step sequence and in a very short time you will master complete operation of the tuner.

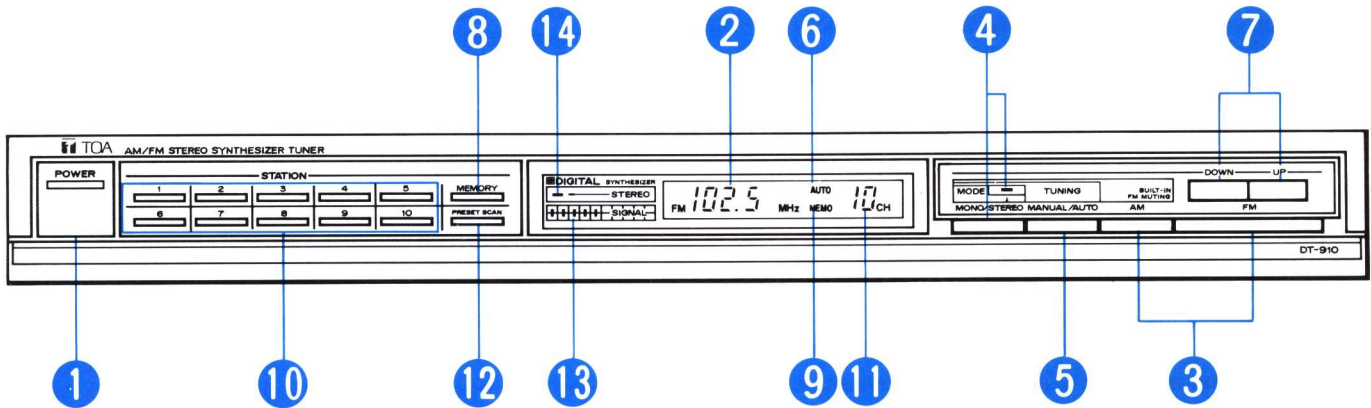


Figure 7

## 1 POWER Switch . . .

Set the VOLUME control on the amplifier to 0 (minimum). Press the POWER switch to switch on the power. The window lamp and the Digital Frequency Display Panel will light. To switch off the power, release the POWER switch by pressing it again.

### CAUTION:

Even when the POWER switch is released, the power transformer remains switched on. The POWER switch will not completely switch off the power to the tuner.

## 2 Digital Frequency Display Panel . . .

This 4-digit display shows the exact tuned-in frequency. The FM range is indicated in MHz and the AM range is indicated in kHz.

## 3 Broadcast Band Selector Buttons . . .

- **FM:** When this button is pressed, broadcast stations within the FM frequency range of 87.5MHz to 108.0MHz can be received. When an FM stereo broadcast is received, the STEREO indicator will light.
- **AM:** When this button is pressed, broadcast stations within the AM frequency range of 530kHz to 1610kHz can be received.

During PRESET SCAN, when your desired station is received, press the FM (or AM) Band Selector Button to stop the PRESET SCAN.

## 4 MONO/STEREO MODE Button and Stereo Mode Indicator . . .

Use this button to select the STEREO or MONO mode. This button affects only FM reception. When this button is set to STEREO, the Stereo Mode indicator will light, and a muting circuit that suppresses the interstation noise during tuning is activated. Stereo broadcasts are heard in stereo and monaural broadcasts are heard in mono. This button should normally be set to the STEREO mode.

For the MONO mode, set this button to MONO. The Stereo Mode indicator will go OFF and the muting circuit is disconnected. When receiving weak-signal FM stations, set this button to the MONO mode.

Setting the button to STEREO reduces interstation noise. Even when such monaural amplifiers as the 900 or 500 Series amplifiers are used, therefore, we recommend that you put the tuner in the stereo mode with the stereo-mono conversion cable.

## 5 MANUAL/AUTO Tuning Button . . .

Use this button to select the AUTO or MANUAL Tuning mode. When this button is set to AUTO, the AUTO Tuning Display will light. When the UP or DOWN Tuning Button is pressed, the tuner will scan up or down the frequency band and automatically stop at the very next station. For MANUAL Tuning, set this button to MANUAL. The AUTO Tuning Display will go OFF. Any frequency assigned by the FCC for U.S. broadcast stations can be tuned in manually by pressing the UP or DOWN Tuning Button.

- 6 AUTO Tuning Display . . .**  
This Display will light when the MANUAL/AUTO Tuning Button is set to AUTO.  
This Display will go OFF when the MANUAL/AUTO Tuning Button is set to MANUAL.
- 7 UP/DOWN Tuning Buttons . . .**  
Use these buttons to tune in FM and AM stations. To adjust the displayed frequency, press the Tuning Button while observing the Digital Frequency Display Panel and the SIGNAL Strength indicators. When the UP Tuning Button is pressed, the displayed frequency will increase. When the DOWN Tuning Button is pressed, the displayed frequency will decrease.  
These buttons can also be pressed when you wish to stop the PRESET SCAN.
- 8 MEMORY Button . . .**  
When this button is pressed, the MEMO Display will light for approximately 5 seconds. Pressing one of the preset STATION Buttons during this time interval will store the selected station in the tuning memory. Up to 10 FM and 10 AM stations (a total of 20) can be stored.
- 9 MEMO Display . . .**  
This Display will light for approximately 5 seconds when the MEMORY button is pressed.
- 10 Preset STATION Buttons . . .**  
Press these buttons to store selected stations in the tuning memory (while the MEMO Display is ON) or when you wish to receive stations that are already stored in the memory. Pressing one of these buttons automatically tunes in the corresponding selected station (if it has been stored in the memory) and the equivalent indicator in the Station Number Display will light.  
These buttons can also be pressed when you wish to stop the PRESET SCAN.
- 11 Station Number Display . . .**  
When a Preset STATION Button is pressed, the corresponding indicator in the Station Number Display will light. During PRESET SCAN operation, the Station Number Display indicators will flash 5 times each, in numerical order, as the corresponding station is scanned.  
When the UP or DOWN Tuning Button is pressed, the indicator in the Station Number Display will go off.
- 12 PRESET SCAN Button . . .**  
Use this button to start the PRESET SCAN. When this button is pressed with the initially selected station, the number of the next Station Number Display will begin flashing and the next memorized station will be received for approximately 5 seconds. Each memorized station will be received in order. After all memorized stations (FM or AM) have been scanned twice, the scanning operation will stop at the last station received before the scanning operation started.  
When this button is pressed without selected station (Station Number Display not lit), the PRESET SCAN will start with number 1.
- 13 SIGNAL Strength Indicators . . .**  
These indicators show the relative signal strength of the received signal. When a directional antenna with a rotor is used, position it in the direction where the highest signal strength is indicated (most indicators lit).
- 14 STEREO Indicator . . .**  
This indicator will light automatically when the FM Band Selector Button is pressed and a stereo broadcast is received. The indicator will not light when the Stereo Mode indicator is not lit, or when a mono broadcast is received.

# TUNER OPERATION

## **AUTOMATIC TUNING (Recommended Tuning Method)**

Stations are tuned in automatically when the UP or DOWN Tuning Button is pressed. When the frequency display reaches the lower limit (87.5MHz FM or 530kHz AM) or the upper limit (108.0MHz FM or 1610kHz AM) of the broadcast band, the auto scan will automatically skip to the upper or lower limit.

1. Set the POWER switch to ON. The tuner will receive the last broadcast station in use before the power was switched off.
2. Set the MANUAL/AUTO Tuning Button to AUTO. The AUTO Tuning Display will light.
3. Press the FM or AM Band Selector Button to select the desired broadcast band.
4. Set the MONO/STEREO MODE button to STEREO, when the FM Band Selector Button is pressed, to receive FM broadcasts in stereo. The Stereo Mode indicator will light.
5. Tune in a station by pressing the UP or DOWN Tuning Button.

When the UP or DOWN Tuning Button is pressed, the displayed frequency will numerically increase or decrease and stop as soon as a station is received. When it is pressed again, the displayed frequency will increase or decrease again until the next station is received. Repeat this operation until the desired station is received.

6. The SIGNAL strength indicators will light in relation to the strength of the received signal.
7. The STEREO indicator will light during the reception of an FM stereo broadcast.

## **MANUAL TUNING (Alternate Tuning Method)**

Proceed with MANUAL TUNING when receiving a weak-signal station which cannot be picked up by AUTOMATIC TUNING. When the MONO/STEREO MODE button is set to STEREO, the FM interstation noise is suppressed. When receiving a weak-signal station, the signal sometimes fades away along with the noise. In this case, set the MONO/STEREO MODE button to MONO. The Stereo Mode indicator will go OFF.

1. Set the POWER switch to ON. The tuner will receive the last broadcast station in use before the power was switched off.
2. Set the MANUAL/AUTO Tuning Button to MANUAL. The AUTO Tuning Display will go OFF.
3. Press the FM or AM Band Selector Button to select the desired broadcast band.

4. Tune in a station by pressing the UP or DOWN Tuning Button.

If the UP or DOWN Tuning Button is pressed and held in that position, the displayed frequency will numerically increase or decrease until the button is released. When the displayed frequency reaches the lower or upper limit of the FM (or AM) band, the manual scan will skip to the upper or lower limit. When the desired frequency is approached, release the button. Then, pressing the button momentarily will move the frequency up or down in 100kHz steps in the FM mode or in 10kHz steps in the AM mode.

5. The SIGNAL Strength indicators will light in relation to the strength of the received signal.
6. The STEREO indicator will light during the reception of an FM stereo broadcast.

## **PRESETTING (MEMORIZING) STATIONS**

Up to 10 stations each for FM and AM can be preset (a total of 20).

1. Tune in the station to be preset.  
Refer to the AUTOMATIC TUNING or MANUAL TUNING section.
2. Once the station has been tuned in, press the MEMORY button and then press one of the STATION Buttons while the MEMO Display is ON. Its Station Number Display will light.

Once the MEMO Display goes OFF, stations can no longer be preset. Make sure that you press the STATION Button while the MEMO Display is ON. If it has gone OFF, repeat the presetting operation.

### **NOTE:**

- Presetting is possible in any order and with any of the Preset STATION buttons for both FM and AM stations.
- When a Preset STATION Button is used to preset a new broadcast station, the previous station presetting is erased. (It is not possible to erase the previous setting without presetting another station.)
- If, after presetting, the power is interrupted, the station presettings will be retained in the memory for approximately one week.
- When a preset STATION Button is pressed after a station frequency has been entered into the memory, the frequency of that preset station will be indicated on the Digital Frequency Display Panel.



## PRESET SCAN OPERATION

When listening to FM or AM broadcasts, if the PRESET SCAN button is pressed, each Station Number Display will flash 5 times in order, and each memorized station will be received for approximately 5 seconds.

1. Set the POWER switch to ON. The tuner will receive the last broadcast station in use before the power was switched off.
2. Press the PRESET SCAN button to start the scan.
3. When a Preset STATION Button is pressed, and the Station Number Display is ON:  
During PRESET SCAN, each memorized station will be received, in numerical order, for approximately 5 seconds. The indicator in the Station Number Display corresponding to the station being received will flash while its station is being scanned. After all memorized stations have been scanned twice (up to 10 FM or AM stations, depending on which broadcast band has been selected and how many stations have been memorized), the PRESET SCAN operation will stop. The last broadcast station received prior to the PRESET SCAN operation will be received, and its Station Number Display indicator will remain ON.
4. When the UP or DOWN Tuning Button is pressed, and the Station Number Display is OFF:  
Each memorized station will be received, in numerical order, for approximately 5 seconds, beginning with station number 1. The Station Number Display indicator, corresponding to the memorized station being received, will flash. After each memorized station has been scanned twice, the Station Number Display will go OFF. The last broadcast station received prior to the PRESET SCAN operation will be received.
5. When the desired station is received, press the corresponding STATION Button. The equivalent Station Number Display indicator will remain ON and the PRESET SCAN operation will stop.

### NOTE:

- If the FM or AM Band Selector Button is pressed, during the time your desired station is being received (approx. 5 seconds), the PRESET SCAN will stop.
- During PRESET SCAN, if the UP or DOWN Tuning Button is pressed, the PRESET SCAN will stop.

## LISTENING TO BROADCASTS

Make sure that you turn down the VOLUME control on the amplifier before operating the tuner.

1. Set the POWER switch on the amplifier to ON.
2. Set the POWER switch on the tuner to ON. The tuner will receive the last broadcast station in use before the power was switched off.
3. Press the FM or AM Band Selector Button to select the desired broadcast band.
4. Turn up the VOLUME control on the amplifier slightly to make tuning easier.
5. For performing PRESET SCAN, refer to PRESET SCAN OPERATION.
6. Select the desired station by pressing a STATION Button (which has already been preset).  
For Automatic or Manual Tuning without using the STATION Buttons, refer to AUTOMATIC TUNING or MANUAL TUNING.
7. If the FM stereo reception is noisy, set the MONO/STEREO MODE button to MONO. The Stereo Mode indicator will go OFF. In this case, the FM program will not be heard in stereo, although the reception will be improved and the noise level reduced.
8. Adjust the VOLUME, BASS and TREBLE controls on the amplifier for the most pleasing sound.

### NOTE:

- The wrong type of antenna or an improper antenna installation are frequent causes of poor FM reception. Carefully read the instructions given in the INSTALLATION OF FM ANTENNAS section.
- A humming noise during AM broadcast reception may be caused by the AC power line. This problem can be remedied as follows:
  - 1) Position the power cord away from the antenna line and the loop antenna.
  - 2) Adjust the position of the loop antenna.

# TIPS FOR SAFE OPERATION

1. **Location:**  
For safe operation and satisfactory performance of the tuner, keep the following in mind when selecting a place for its installation:
  - Shelter it from direct sunlight and keep it away from sources of intense heat.
  - Avoid dusty or humid locations.
  - Avoid places with insufficient ventilation for heat dissipation.
2. **When handling the power cord:**
  - Do not handle the power cord with wet hands.
  - Do not pull on the power cord when disconnecting it from the AC outlet. Grasp it at the plug.
3. **Avoiding the hazards of electrical shock or fire:**  
If, by accident, water is spilled on the tuner, unplug the power cord immediately and have the unit serviced by Toa authorized contractor or service center.
4. **When changing the connections:**  
Be sure to switch off the power at the source when changing the connections to the input terminals. This precaution is necessary to protect the speakers, which may be damaged by a sudden increase in input.
5. **Cleaning:**  
Wipe the front panel and other exterior surfaces of the tuner with a soft, dry cloth. Stains should be removed by wiping the surfaces with a soft cloth immersed in lukewarm water and wrung dry. Never use a solvent or alcohol. Do not spray insecticide liquid near the tuner. Such chemicals may cause surface discoloration and cracking.

# TROUBLESHOOTING GUIDE

If you have followed the instructions in the CONNECTING and CONTROLS sections, and have difficulty operating your tuner, locate the SYMPTOM in the left column below. Check the corresponding POSSIBLE CAUSE and CORRECTIVE ACTION columns to locate and remedy the problem.

| SYMPTOM  | POSSIBLE CAUSE  | CORRECTIVE ACTION   |
|--|---|---|
| No sound. The window lamp and the Digital Frequency Display Panel do not light when the POWER switch is set to ON. | Faulty connection to the AC outlet.                                     | Insert the plug firmly into the AC outlet.  |
| No sound at all. (The window lamp and the Digital Frequency Display Panel are on.)                                 | Faulty connection of the output cable on the tuner.                     | Connect the cable firmly to the AUX jack on the amplifier.  |
| No reception even when a STATION Button is pressed.  | Incorrect frequency has been preset.                                    | Preset the correct frequency.   |
|  | Weak signal.  | Set the MODE button to MONO.  |
| Continuous or intermittent hissing noise, especially at night.   | Noises caused by motors, fluorescent lamps, lightning, television, etc. | Keep the tuner away from noise sources. Install an outdoor AM antenna. (Noises may be reduced, but not completely removed.) |
| Poor FM reception.   | No antenna is connected.  | Connect an FM dipole antenna to the FM antenna terminals on the rear panel of the tuner. Refer to CONNECTING THE TUNER.     |
|  | Shorted or faulty connection(s) between the FM antenna and the tuner.   | Check the connections to the FM antenna terminals on the rear panel of the tuner.   |
|  | Antenna not oriented for the best reception.                            | Change the position of (rotate) the antenna. Refer to the INSTALLATION OF FM ANTENNAS section.                              |
| Continuous hissing noise, especially when a stereo broadcast is received.  | Weak signal.  | Install an outdoor FM antenna. Use a 3 to 5 element antenna if the broadcast station is far away.                           |
| Flickering of the stereo indicator.  | Weak signal.  | Install an outdoor FM antenna.  |

## SERVICING:

- Unpacking**  
 Upon receipt of the tuner shipment, please inspect for damage incurred in transit. If damage is found, please notify local Toa representative and the transportation company immediately. State date, nature of damage, whether any damage was noticed on the shipping container, prior to unpacking. Please give waybill number of shipping order.
- Failure**  
 Should tuner fail, contact your nearest Toa authorized contractor or service center.

