

# YAMAHA TX-500U

*Natural Sound AM/FM Stereo Tuner*

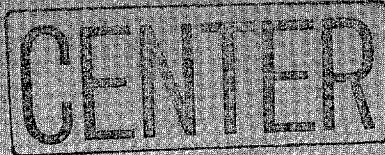
*Multi-Status Station Memory*

*IF Mode Selector*

*20-Station Random Access Preset Tuning*

*High Blend Circuit*

Thank you for purchasing the YAMAHA TX-500U AM/FM stereo tuner.



**OWNER'S MANUAL**

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### IMPORTANT

Please record the serial number of your unit in the space below:

Model: **TX-500U**

Serial No.:

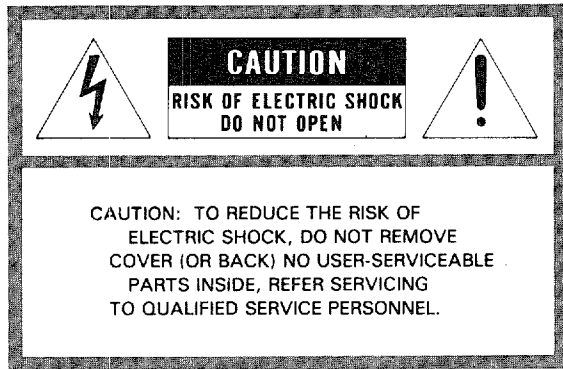
The serial number is located on the rear of the unit.

Retain this Owner's Manual in a safe place for future reference.

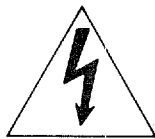
### WARNING

To prevent fire or shock hazard, do not expose this appliance to rain or moisture.

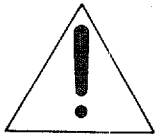
# TX-500U



## • Explanation of Graphical Symbols



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert you to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert you to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

## SAFETY INSTRUCTIONS

- 1 **Read Instructions** — All the safety and operating instructions should be read before the appliance is operated.
- 2 **Retain Instructions** — The safety and operating instructions should be retained for future reference.
- 3 **Heed Warnings** — All warnings on the appliance and in the operating instructions should be adhered to.
- 4 **Follow Instructions** — All operating and other instructions should be followed.
- 5 **Water and Moisture** — The appliance should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.
- 6 **Carts and Stands** — The appliance should be used only with a cart or stand is recommended by the manufacturer.
- 7 **Wall or Ceilling Mounting** — The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
- 8 **Ventilation** — The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
- 9 **Heat** — The appliance should be situated away from heat sources such as radiators, or other appliances that produce heat.
- 10 **Power Sources** — The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
- 11 **Power-Cord Protection** — Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
- 12 **Cleaning** — The appliance should be cleaned only as recommended by the manufacturer.
- 13 **Nonuse Periods** — The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
- 14 **Object and Liquid Entry** — Care should be taken so that objects do not fall into and liquid not spilled into the inside of the appliance.
- 15 **Damage Requiring Service** — The appliance should be serviced by qualified service personnel when:
  - A. The power-supply cord or the plug has been damaged; or
  - B. Objects have fallen, or liquid has been spilled into the appliance; or
  - C. The appliance has been exposed to rain; or
  - D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
  - E. The appliance has been dropped, or the cabinet damaged.

# TX-500U

**CAUTION: READ THIS BEFORE OPERATING YOUR TX-500U**

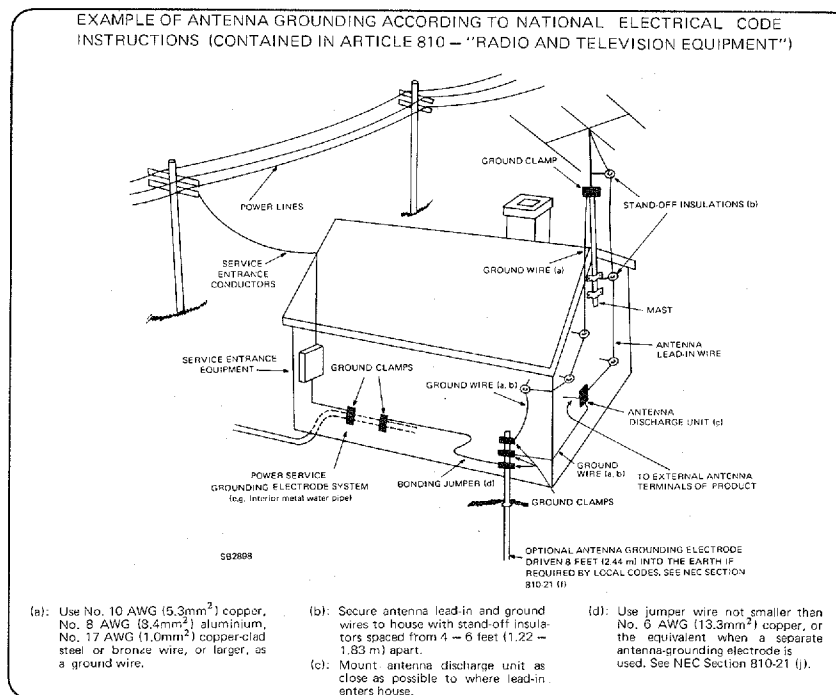
**16 Servicing** — The user should not attempt to service the appliance beyond those means described in the operating instructions. All other servicing should be referred to qualified service personnel.

**17 Power Lines** — An outdoor antenna should be located away from power lines.

**18 Grounding or Polarization** — The precautions that should be taken so that the grounding or polarization means of an appliance is not defeated.

**19 Outdoor Antenna Grounding** — If an outside antenna is connected to the tuner, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges.

Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.



**1.** The TX-500U is a sophisticated AM/FM stereo tuner. To ensure proper operation for the best possible performance, please read this manual carefully.

**2.** Choose the installation location of your TX-500U carefully. Avoid placing it in direct sunlight or close to a source of heat. Also avoid locations subject to vibration and excessive dust, heat, cold or moisture. Keep it away from such sources of hum as transformers or motors.

**3.** Do not open the cabinet as this might result in damage to the set, or electrical shock. If a foreign object should get into the set, contact your dealer.

**4.** To prevent lightning damage, pull out the power cord and remove the antenna cable during an electrical storm.

**5.** When removing the power plug from the wall outlet, always pull directly on the plug; never pull the cord itself.

**6.** Do not use force when using the switches.

**7.** When moving the set be sure to first pull out the power plug and remove cords connected to other equipment.

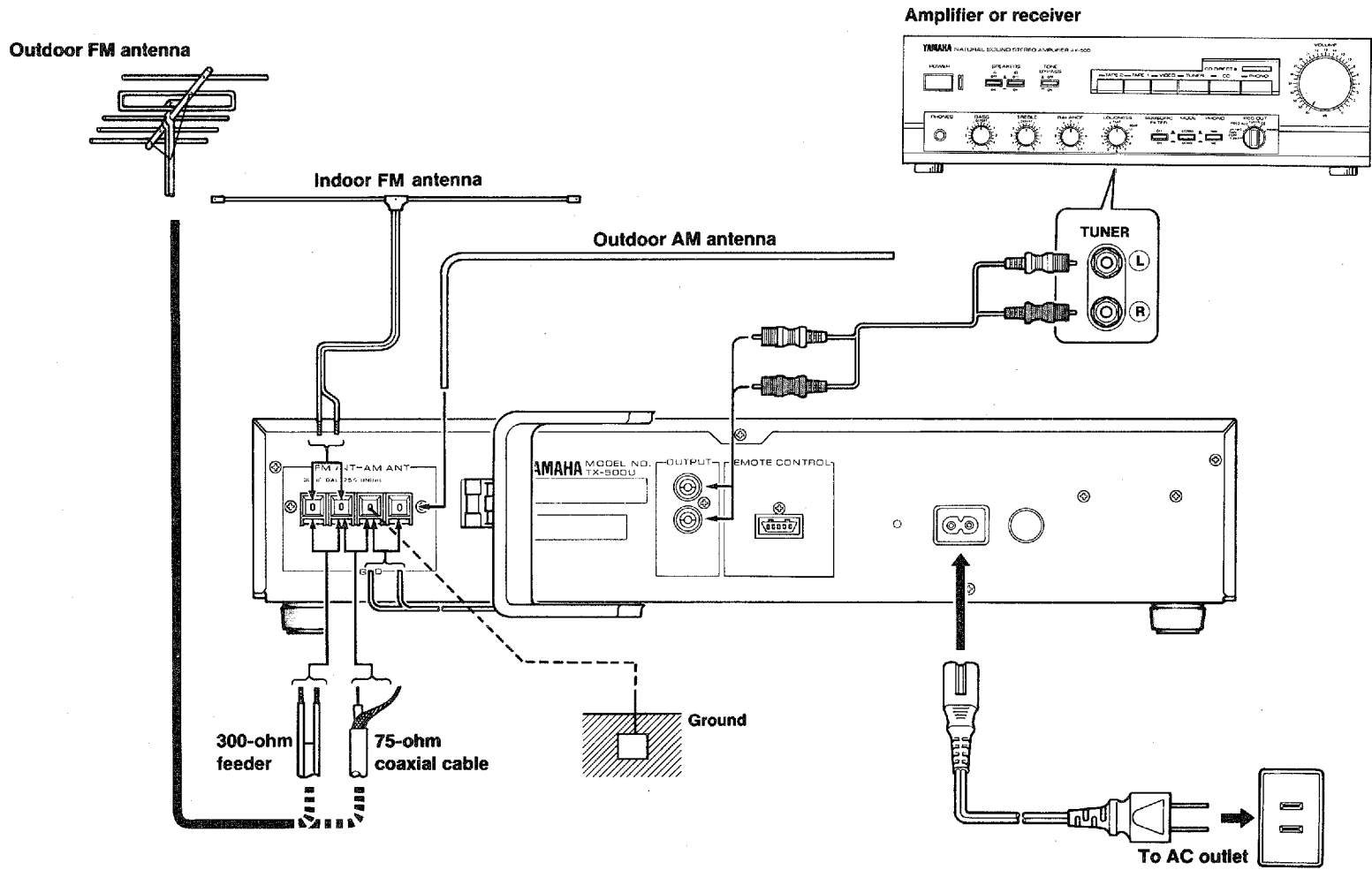
**8.** Do not attempt to clean the TX-500U with chemical solvent as this might damage the finish. Use a clean, dry cloth.

**9.** Be sure to read the "Troubleshooting" section for advice on common operating errors before concluding that your TX-500U is faulty.

**10.** Keep this manual in a safe place for future reference.

# TX-500U

## CONNECTIONS



## ■ OUTPUT jacks

Connect the OUTPUT jacks of this unit to the tuner jacks of an amplifier or receiver with correct right and left channel polarities.

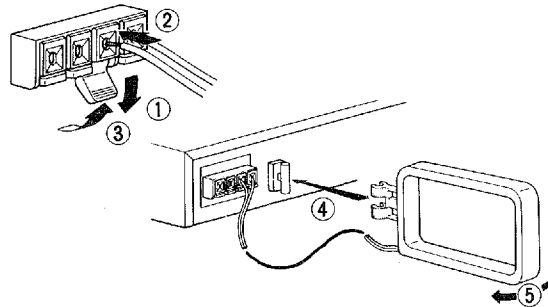
## ■ GND terminal

For maximum safety and minimum interference, connect the GND terminal to a good earth ground if practicable. A good earth ground is a metal stake driven into moist earth.

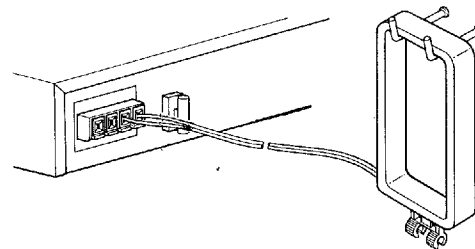
## ■ AM ANTENNAS

### ● AM loop antenna

Connect the AM loop antenna cords to the AM ANT and GND terminals.



- ① Lower the knobs of the terminals.
- ② Connect the loop antenna cords to the AM ANT and GND terminals.
- ③ Raise the knobs.
- ④ Attach the loop antenna to the unit.
- ⑤ Move the AM loop antenna for best reception.  
The AM loop antenna can be detached from the unit and hung on a wall.



### ● Outdoor AM antenna

The end of the wire should be stripped of insulation and connected to the AM ANT terminal. At this time, keep the loop antenna connected.

## ■ FM ANTENNAS

### SUPPLIED INDOOR FM ANTENNA

Connect the supplied indoor FM antenna to the 300Ω BAL FM ANT terminals.

### OUTDOOR FM ANTENNA

#### ● 75-ohm coaxial cable connection

After stripping the end of the coaxial cable, connect to the 75Ω UNBAL FM ANT terminals.

#### ● 300-ohm feeder connection

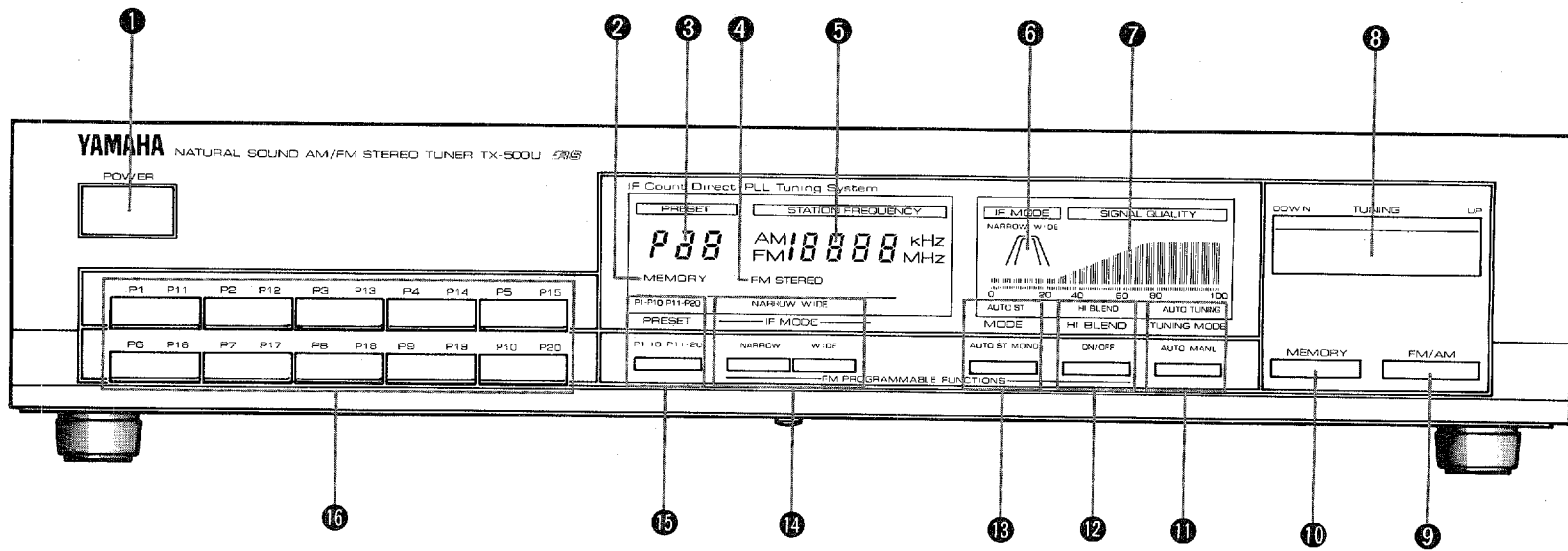
After stripping the end of the feeder, connect to the 300Ω BAL FM ANT terminals.

## ■ REMOTE CONTROL terminal

With the REMOTE CONTROL terminal on the rear of the TX-500U, system remote control through the amplifier is possible. Connect the terminal to REMOTE CONTROL terminal of the amplifier with the flat cable supplied to the amplifier. For details of operation, refer to the Owner's Manual of the amplifier.

# TX-500U

## FRONT PANEL PARTS AND FUNCTIONS



**① POWER switch**

Press this switch to turn the power on. Press again to turn the power off.

**② MEMORY indicator**

Flickers for about 5 seconds when the MEMORY button is pressed.

**③ PRESET station display**

Displays the selected preset station.

**④ FM STEREO indicator**

Lights when an FM stereo broadcast with a sufficient signal strength is received.

**⑤ STATION FREQUENCY display**

Displays the band and frequency of the received frequency.

**⑥ IF MODE display**

Displays the selected IF mode (NARROW and WIDE).

**⑦ SIGNAL QUALITY indicator**

Indicates the level of the received frequency. If the multipath interference is detected, the level of the signal quality indication decreases.

**⑧ TUNING button**

Press either side of the TUNING button to carry out auto or manual tuning.

**⑨ FM/AM button**

Press this button to select the reception band between FM and AM.

**⑩ MEMORY button**

When this button is pressed, the MEMORY indicator flickers for about 5 seconds. During this period, press the desired preset station button to store the displayed frequency.

**⑪ TUNING MODE button and indicator**

Used to select the tuning mode between AUTO and MAN'L.

**⑫ HI BLEND button and indicator**

Press this button to eliminate an annoying high frequency noise from FM broadcast.

**⑬ MODE button and indicator**

Used to select the FM reception mode.

**AUTO ST:** To receive an FM stereo broadcast with a sufficient signal strength in stereo mode.

**MONO:** To receive a weak FM broadcast. The received broadcast is heard in monaural mode.

**⑭ IF MODE buttons and indicators**

Press these buttons to select the mode of the IF band bass width.

When the reception signal is strong, press the WIDE IF MODE button to obtain the distortion-free sound.

When the reception signal is weak or when the desired station is interfered with adjacent stations, press the NARROW IF MODE button to increase the selectivity.

**⑮ PRESET station range selector and indicator**

Press this button to select the range of the preset station buttons. When this selector is pressed, the indicator of the selected range flickers for about 5 seconds, then lights.

**⑯ Preset station buttons**

Up to 20 station frequencies and reception modes can be stored using the preset station button.

# TX-500U

## OPERATION

### ■ AUTO TUNING

If signals are strong and there is no interference, quick automatic search tuning is possible.

1. Select the reception band with FM/AM buttons.
2. Press the TUNING MODE button so that the indicator above the button lights up.
3. For FM reception, set the IF MODE, HI BLEND and MODE buttons as desired.
4. Use the TUNING button to tune.  
The tuning will start automatically and stops at broadcast station frequency with a sufficient signal strength.
5. If the station where tuning stops is not the one you want, press the TUNING button once again.

### ■ MANUAL TUNING

Auto tuning may not stop if the station signal is weak. If so, use manual tuning.

1. Select the reception band with FM/AM button.
2. Press the TUNING MODE button so that the indicator above the button goes off.
3. For FM reception, set the IF MODE, HI BLEND and MODE buttons as desired.
4. Use the TUNING button to tune.  
The frequency will change rapidly if the TUNING button is kept pressed. Release it slightly before reaching the desired frequency, and then press it intermittently until the desired frequency is reached.

### ■ PRESET TUNING

The preset station button can be used to select, at a single touch, any desired station which has been preset.

1. Tune to the desired station using auto or manual tuning mode.
  2. Select the range of the preset station button with the PRESET button.
  3. Press the MEMORY button and then while the MEMORY indicator is flickering, press the desired preset station button.
  4. To receive the preset station, select the range of the preset station button with the PRESET button and press the desired preset station button.
- Follow the same procedure for other preset station buttons. The new setting will be programmed in place of the former one.
  - For FM reception, the setting of the IF MODE, HI BLEND, and MODE buttons are stored together with the station frequency.

#### ● Memory back-up

The memory back-up circuit will prevent the programmed information from being lost even though the power is switched OFF for timer use of other temporary power failure. If, however, the unit is not used for about one week after power is supplied for about one hour, the memory may be erased. If so, it can be re-programmed by simply following the original procedure.



## SPECIFICATIONS

### FM SECTION

|  |                         |
|--|-------------------------|
| <b>Tuning Range</b> .....                        | 87.5 to 107.9 MHz       |
| <b>50 dB Quieting Sensitivity (IHF), 75 ohms</b> |                         |
| <b>Mono</b> .....                                | 1.55 $\mu$ V (15.1 dBf) |
| <b>Stereo</b> .....                              | 20 $\mu$ V (37.7 dBf)   |
| <b>Usable Sensitivity</b>                        |                         |
| <b>(30 dB Quieting, NARROW)</b>                  |                         |
| <b>75 ohms</b> .....                             | 0.8 $\mu$ V (9.3 dBf)   |
| <b>Image Response Ratio</b> .....                | 40 dB                   |
| <b>IF Response Ratio</b> .....                   | 90 dB                   |
| <b>Spurious Response Ratio</b> .....             | 70 dB                   |
| <b>AM Suppression Ratio</b> .....                | 55 dB                   |
| <b>Capture Ratio</b> .....                       | 1.5 dB                  |
| <b>Alternate Channel Selectivity</b>             |                         |
| <b>(NARROW)</b> .....                            | 85 dB                   |
| <b>Signal-to-Noise Ratio</b>                     |                         |
| <b>(IHF)</b>                                     |                         |
| <b>Mono</b> .....                                | 82 dB                   |
| <b>Stereo</b> .....                              | 76 dB                   |
| <b>Distortion</b>                                |                         |
| <b>Mono:</b>                                     |                         |
| <b>1 kHz</b> .....                               | 0.05% (WIDE)            |
| <b>Stereo:</b>                                   |                         |
| <b>1 kHz</b> .....                               | 0.07% (WIDE)            |
| <b>Stereo Separation</b>                         |                         |
| <b>1 kHz</b> .....                               | 50 dB (WIDE)            |
| <b>Frequency Response:</b>                       |                         |
| <b>30 Hz to 13 kHz</b> .....                     | 0 dB $\pm$ 0.5 dB       |

### AM SECTION

|                                      |                 |
|--------------------------------------|-----------------|
| <b>Tuning Range</b> .....            | 530 — 1,610 kHz |
| <b>Usable Sensitivity</b> .....      | 250 $\mu$ V/m   |
| <b>Selectivity</b> .....             | 32 dB           |
| <b>Signal-to-Noise Ratio</b> .....   | 50 dB           |
| <b>Image Response Ratio</b> .....    | 40 dB           |
| <b>Spurious Response Ratio</b> ..... | 50 dB           |
| <b>Distortion</b> .....              | 0.3%            |

### AUDIO SECTION

#### Output Level/Impedance:

##### (NORMAL)

|                                  |                  |
|----------------------------------|------------------|
| <b>FM (100% mod., 1 kHz)</b> ... | 500 mV/3.3 k-ohm |
| <b>AM (30% mod., 400 Hz)</b> ... | 150 mV/3.3 k-ohm |

### GENERAL

|                                   |   |
|-----------------------------------|---|
| <b>Power Supply</b> .....         | AC 120V, 60 Hz  |
| <b>Power Consumption</b> .....    | 10W   |
| <b>Dimensions (W x H x D)</b> ... | 435 x 92.5 x 282.5 mm<br>(17-1/8" x 3-11/16" x 11-1/8") |
| <b>Weight</b> .....               | 3.1 kg (6 lb 13 oz)                                     |

Specifications subject to change without notice.

# TX-500U

## TROUBLESHOOTING

When your unit fails to function properly, before assuming it is faulty, check it according to the following troubleshooting list. It details the corrective action you can take yourself without having to call a service engineer. If you have any doubts or questions, get in touch with your nearest YAMAHA dealer.

|   | SYMPTOM   | CAUSE  | REMEDY  |
|---|---|--|---|
| FM  | Crackling sounds from time to time (especially in weak signal areas).                   | ● Ignition noise from passing vehicles.  | ● The FM antenna should be put up as high as possible, away from the road, and a coaxial cable used.                          |
|   |   | ● Noise from thermostats or other electrical equipment.  | ● Attach a noise suppressor to the equipment causing the noise.   |
|   | FM stereo reception is noisy.   | ● Because of the characteristics of FM stereo broadcasts, this is limited to cases where the transmitter is far away or the antenna input is poor. | ● Check the antenna connections.<br>● Try using a multiple element FM antenna.<br>● Set the TUNING MODE button to MAN'L mode. |
|   | The STEREO indicator flickers and reception is noisy.                                   | ● Insufficient antenna input.  | ● Use an antenna appropriate for the reception condition in your area.  |
|   |   | ● Not tuned correctly.   | ● Tune again.   |
|   | There is distortion and clear reception cannot be obtained even with a good FM antenna. | ● There is multipath interference.   | ● Adjust antenna placement to eliminate multipath interference.   |
|   | No stereo effect even with a stereo broadcast.  | ● The TUNING MODE button is set to MAN'L.  | ● Set the button properly.  |
|   | A desired station cannot be tuned in with Auto tuning.                                  | ● The station is too weak.   | ● Use Manual tuning mode.<br>● Set the IF MODE correctly.<br>● Use high quality directional FM antenna.                       |
| Previously preset stations can no longer be tuned in. | ● The tuner has been unplugged for a long period.                                       | ● Repeat the presetting procedure.   |   |
| AM  | Insufficient sensitivity.   | ● Weak signal or loose antenna connections.  | ● Tighten the AM loop antenna connections and rotate it for best reception.   |
|   | A desired station cannot be tuned in with Auto tuning.                                  |  | ● Use Manual tuning mode.   |
|   | There are continuous crackling and hissing noises.                                      | ● These noises result from lightning, fluorescent lamps, motors, thermostats and other electrical equipment.                                       | ● Use an outdoor antenna and a ground wire. This will help some what but it is difficult to eliminate all noise.              |
|   | There are buzzing and whining noises (especially in the evening).                       | ● Another station is interfering with the received station.  | ● This is impossible to remedy.   |
| ● A television set is being used nearby.              |   | ● Move the television away.  |   |

TX-500U 

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