

# YAMAHA TX-900U

*Natural Sound AM/FM Stereo Tuner*  
*New Computer Servo Lock Tuning System*  
*Super-Precision Digital Fine Tuning*  
*Multi-Status Station Memory*  
*3-Position IF Mode Selector (Auto/Manual)*  
*20-Station Random Access Preset Tuning*  
*High Blend Circuit*

Thank you for purchasing the YAMAHA TX-900U 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-900U**

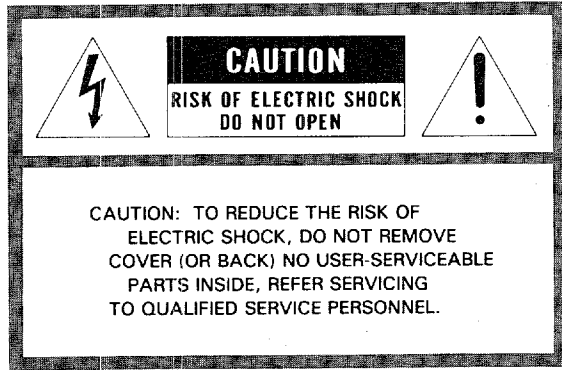
Serial No. \_\_\_\_\_

The serial number is located on the rear of the unit.  
Retain this Owner's Manual in a safe place for future reference.

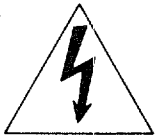
### WARNING

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

# TX-900U



## • 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 Ceiling 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.

**CAUTION: READ THIS BEFORE OPERATING YOUR TX-900U**

**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.

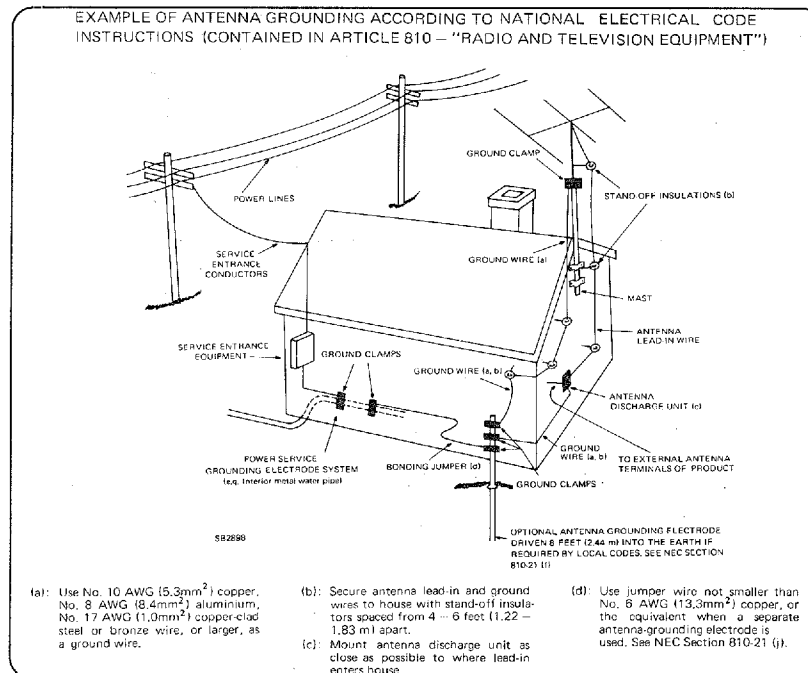
**17 Power Lines** — An outdoor antenna should be located away from power lines.

**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.

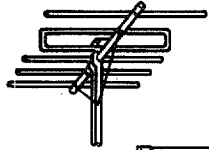
1. The TX-900U is a sophisticated AM/FM stereo tuner. To ensure proper operation for the best possible performance, please read this manual carefully.
2. Choose the installation location of your TX-900U carefully. Avoid placing it in direct sunlight or close to a source of heat. Also avoid locations 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-900U 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-900U is faulty.
10. Keep this manual in a safe place for future reference.



# TX-900U

## CONNECTIONS

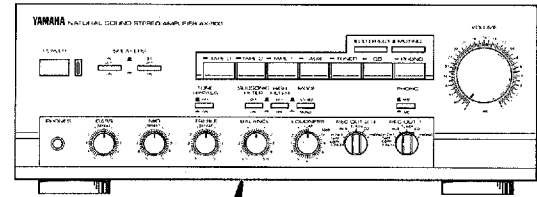
Outdoor FM antenna



Indoor FM antenna

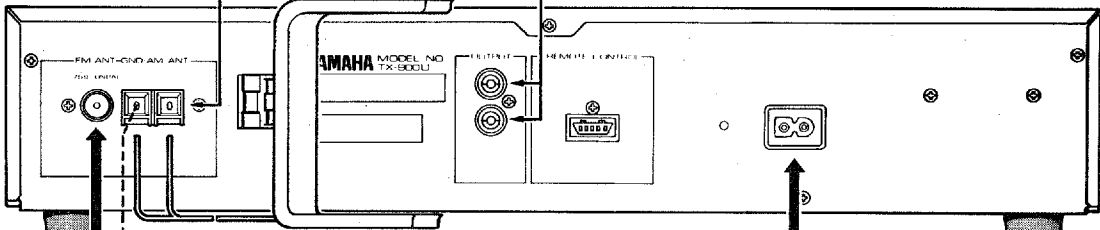
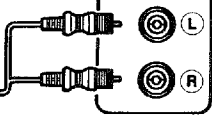


Outdoor AM antenna



Amplifier or receiver

TUNER



75-ohm/300-ohm antenna adapter

300-ohm feeder

75-ohm coaxial cable

Ground

To AC outlet

# TX-900U

## ■ 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.

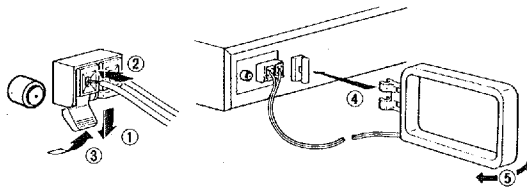
## ■ GND terminal

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.

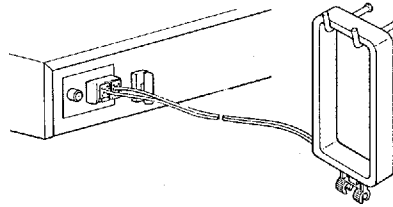
## ■ AM ANTENNAS

### ● 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 ANTENNA

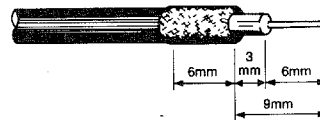
Connect the supplied indoor antenna to the terminals on the supplied 75-ohm/300-ohm antenna adapter. At this time, attach the ring to the contacts in the antenna adapter.

### OUTDOOR FM ANTENNA

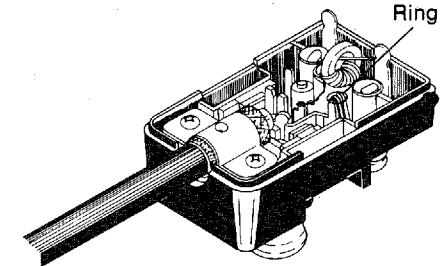
### ● 75-ohm coaxial cable connection

After stripping the end of your coaxial cable, connect to the supplied 75-ohm/300-ohm antenna adapter. Then insert the plug of the antenna adapter into the FM ANT terminal on the rear panel. At this time, the ring in the 75-ohm/300-ohm antenna adapter should be attached onto the boss of the antenna adapter cover.

1. Arrange the coaxial cable as shown below.



2. Connect the processed coaxial cable to 75-ohm/300-ohm antenna adapter as shown below. Attach the ring shown in the below figure, to the boss in the cover.



### ● 300-ohm feeder connection

The unit can also accept a 300-ohm indoor antenna or 300-ohm feeder by using the supplied 75-ohm/300-ohm antenna adapter. Connect the wires to the terminals on the adapter, then insert it into the FM ANT terminal on the rear panel.

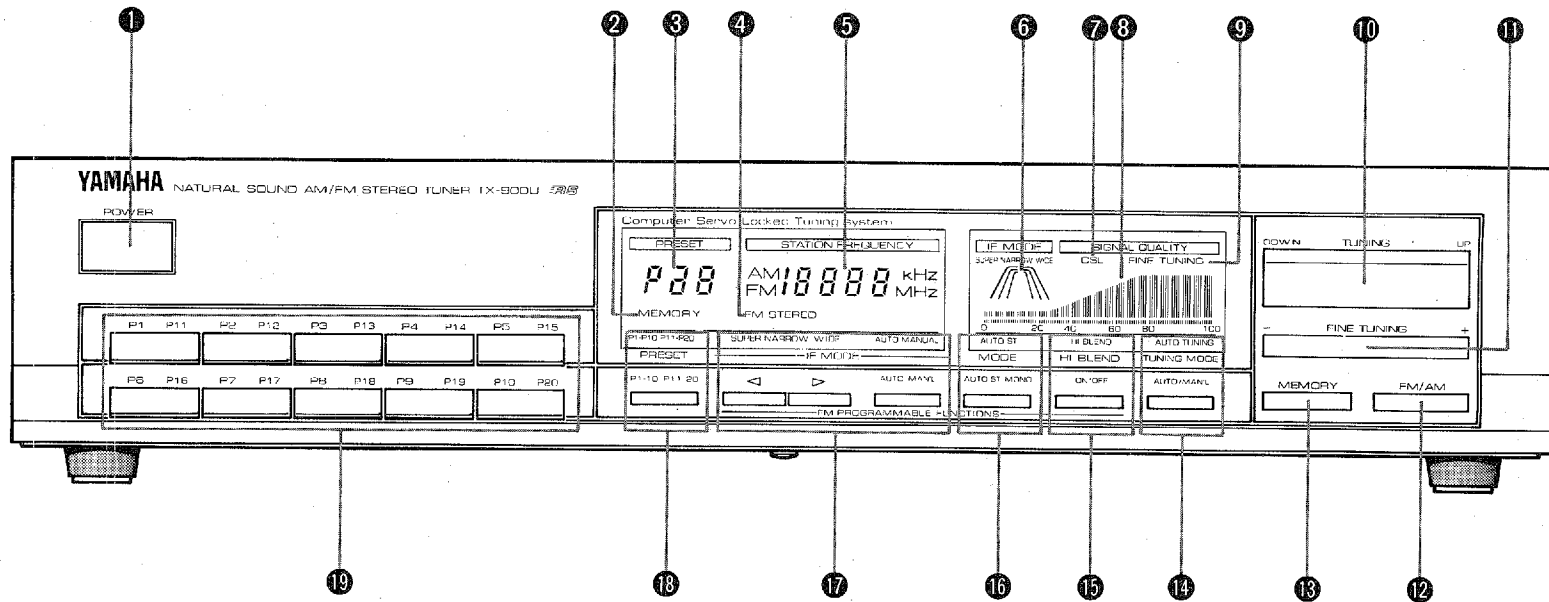
To connect the 300-ohm feeder, attach the ring to the contacts. If the ring is not attached, the sensitivity decreases.

## ■ REMOTE CONTROL terminal

With the REMOTE CONTROL terminal on the rear of the TX-900U, 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-900U

## 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 (SUPER NARROW, ANROW and WIDE).

## ⑦ CSL (Computer Servo Lock) indicator

This indicator lights when a broadcasting signal with a sufficient level is locked with YAMAHA CSL system. A station signal is initially tuned in with a PLL tuning synthesizer tuning circuit. When the signal received is a strong, high-quality signal, the CSL system selects the FM servo tuning circuit to maximize reproduction quality.

## ⑧ SIGNAL QUALITY indicator

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

## ⑨ FINE TUNING indicator

Lights when the FINE TUNING button is operated.

## ⑩ TUNING button

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

## ⑪ FINE TUNING button

Press either side of the FINE TUNING button to tune the station precisely. When this button is pressed, the displayed frequency changes by 0.01 MHz in FM and 1 kHz in AM band.

## ⑫ FM/AM button

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

## ⑬ 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.

## ⑭ TUNING MODE button and indicator

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

## ⑮ HI BLEND button and indicator

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

## ⑯ 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.

## ⑰ IF MODE buttons and indicator

Used to vary the pass band width of the intermediate frequency.

**AUTO/MAN'L button:** Press this button to manually select the auto or manual IF mode.

When this button is pressed and the indicator above the button lights up, the IF mode is automatically selected according to the quality of the received frequency.

**Selector button:** Press this button to select the mode of the IF band pass width.

When the reception signal is strong, press this button so that the WIDE indicator lights up to obtain the distortion-free sound.

When the reception signal is weak or when the desired station is interfered with adjacent stations, press this button so that the NARROW or SUPER NARROW indicator lights up to increase the selectivity.

## ⑱ 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.

## ⑲ Preset station buttons

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

# TX-900U

## 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.

### ● FINE TUNING

Rapid tuning is usually possible by the auto or manual tuning method, but more stabilized reception by fine tuning is possible as follows.

- To receive a weak or very badly fading broadcast signal from among many signals.
- To receive a weak or medium-strength signal which is near a strong signal.
- If beat noise is received.

In the above instances, manual tuning and then fine tuning can be used to reduce noise and distortion. The best reception can be easily obtained by using the SIGNAL QUALITY meter during fine tuning.

### ■ 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, MODE and FINE TUNING buttons are stored together with the station frequency. For AM reception, the setting of the FINE TUNING button is 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

Tuning Range	87.6 to 108 MHz
50 dB Quieting Sensitivity (IHF), SUPER NARROW, 75 ohms	
Mono	1.6 $\mu$ V (15.3 dBf)
Stereo	21 $\mu$ V (37.7 dBf)
Usable Sensitivity (30 dB Quieting) 75 ohms	0.9 $\mu$ V (10.3 dBf)
Image Response Ratio	80 dB
Spurious Response Ratio	110 dB
AM Suppression Ratio	70 dB
Alternate Channel Selectivity (SUPER NARROW)	85 dB
Signal-to-Noise Ratio (IHF)	
Mono	96 dB
Stereo	90 dB
Distortion	
Mono:	
1 kHz	0.02% (WIDE)
Stereo:	
1 kHz	0.03% (WIDE)
Stereo Separation	
1 kHz	60 dB (WIDE)
Frequency Response:	
20 Hz to 15 kHz	0 dB $\pm$ 0.5 dB

### AM SECTION

Tuning Range	530 — 1,620 kHz
Usable Sensitivity	250 $\mu$ V/m
Selectivity	32 dB
Signal-to-Noise Ratio	52 dB
Image Response Ratio	40 dB
Spurious Response Ratio	50 dB
Distortion	0.3%

### AUDIO SECTION

#### Output Level/Impedance:

##### (NORMAL)

FM (100% mod., 1 kHz)	0.5V/2 k-ohm
AM (30% mod., 400 Hz)	0.15V/2 k-ohm

### GENERAL

Power Supply	AC 120V, 60 Hz
Power Consumption	10W
Dimensions (W x H x D)	435 x 92.5 x 282.5 mm (17-1/8" x 3-11/16" x 11-1/8")
Weight	3.3 kg (7 lb 4 oz)

Specifications subject to change without notice.

# TX-900U

## 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. ● Try using a multiple element FM antenna. ● Set the TUNING MODE button to MAN'L mode.
	The ST 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. ● Set the IF MODE correctly. ● 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.  A desired station cannot be tuned in with Auto tuning.	● Weak signal or loose antenna connections.	● Tighten the AM loop antenna connections and rotate it for best reception.
			● 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-900U 

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NIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN