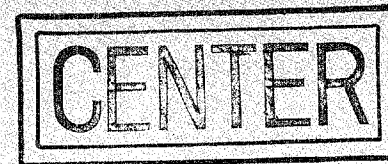


YAMAHA TX-77

Natural Sound AM/FM Stereo Tuner
Yamaha Auto Function System Compatibility
7 AM / 7 FM Touch Sensor Preset Tuning
PLL Synthesizer Auto Search Tuning System
Compact Design with Sensor Touch Controls



OWNER'S MANUAL



Thank you for purchasing the YAMAHA TX-77 AM/FM stereo tuner.

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IMPORTANT

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

Model: TX-77

Serial No.:

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

CAUTION (PREPARED IN ACCORDANCE WITH UL STANDARD 1270)

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 swimming pool, etc.

6 Carts and Stands — The appliance should be used only with a cart or stand that 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, stoves, 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 liquids not spilled into the inside of the appliance.

15 Damage Requiring Service — The appliance should be serviced by qualified service personnel when:

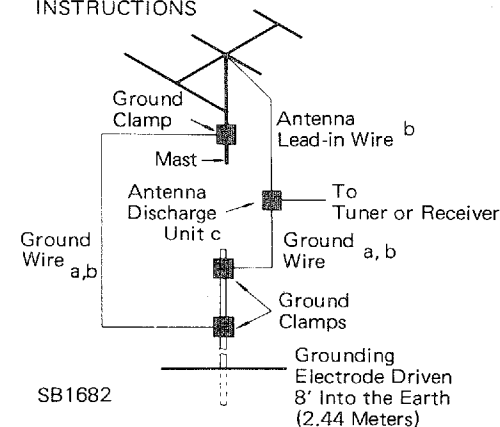
- A. The power-supply cord or the plug has been damaged; or
- B. Objects have fallen, or liquid has been spilled into the appliance; or
- C. The appliance has been exposed to rain; or
- D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
- E. The appliance has been dropped, or the cabinet damaged.

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.

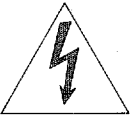
18 Outdoor antenna grounding — If an outside antenna is connected to the tuner, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70 — 1981, provides information with respect 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.

EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE INSTRUCTIONS



- a. Use No. 10 AWG (5.3 mm²) copper, No. 8 AWG (8.4 mm²) aluminium, No. 17 AWG (1.0 mm²) copper-clad steel or bronze wire, or larger, as ground wire.
- b. Secure antenna lead-in and ground wire to house with stand-off insulators spaced from 4 feet (1.22 meters) to 6 feet (1.83 meters) apart.
- c. Mount antenna discharge unit as closely as possible to where lead-in enters house.

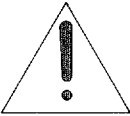
**CAUTION: READ THIS BEFORE
OPERATING YOUR TX-77**



CAUTION

RISK OF ELECTRIC SHOCK

DO NOT OPEN

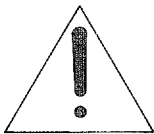


CAUTION: TO REDUCE THE RISK OF
ELECTRIC SHOCK, DO NOT REMOVE
COVER (OR BACK). NO USER-SERVICEABLE
PARTS INSIDE. REFER SERVICING TO
QUALIFIED SERVICE PERSONNEL.

• 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.

1

The TX-77 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-77 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 in case of an electrical storm.

5

Do not use force when using the switches or knobs.

6

When moving the set be sure to first pull out the power connector and remove cords connecting to other equipment.

7

Do not attempt to clean the TX-77 with chemical solvents as this might damage the finish. Use a clean, dry cloth.

8

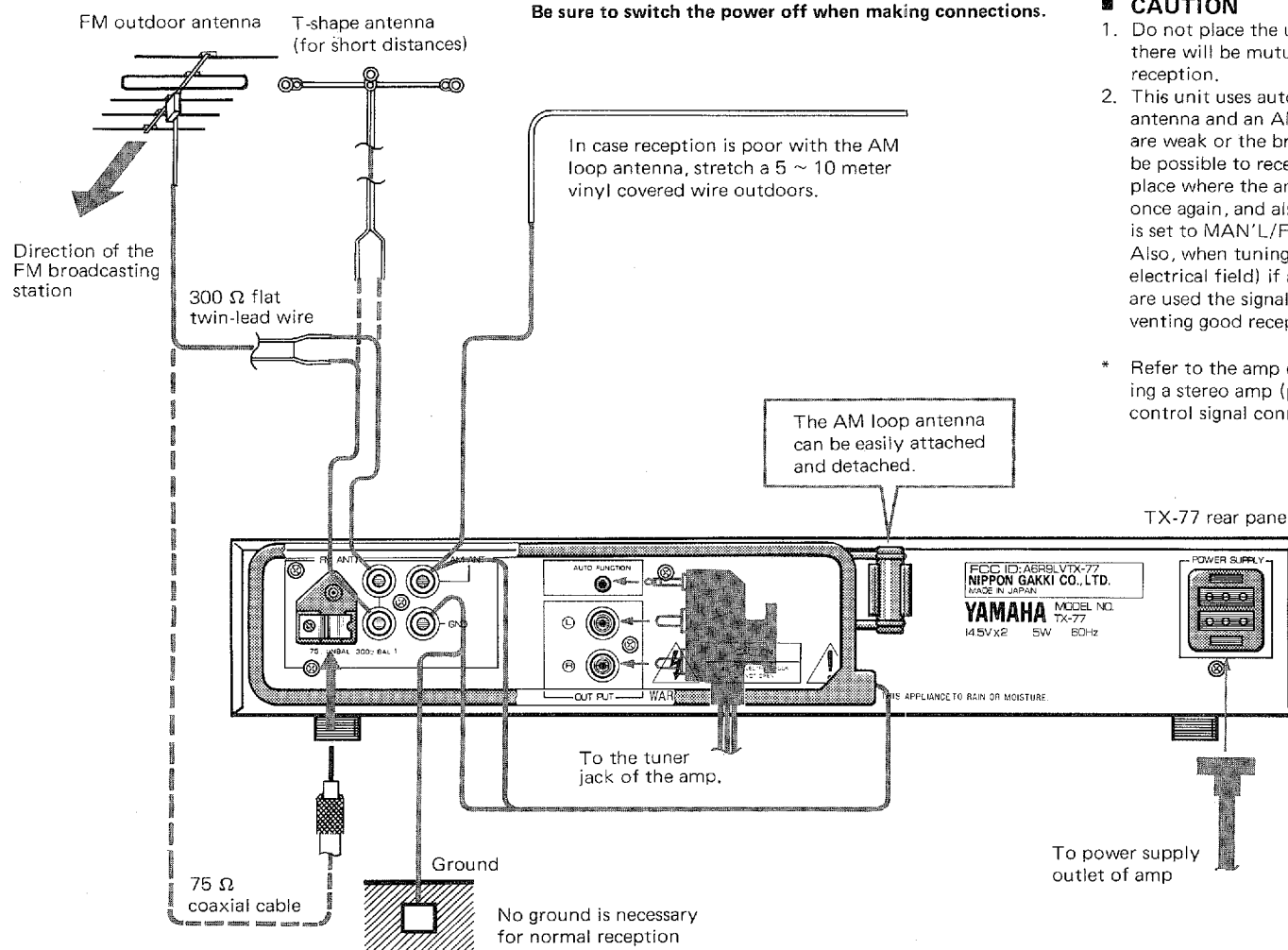
Be sure to read the "troubleshooting" section for advice on common operating errors before concluding that your TX-77 is faulty.

9

Keep this manual in a safe place for future reference.

TX-77

CONNECTION DIAGRAM

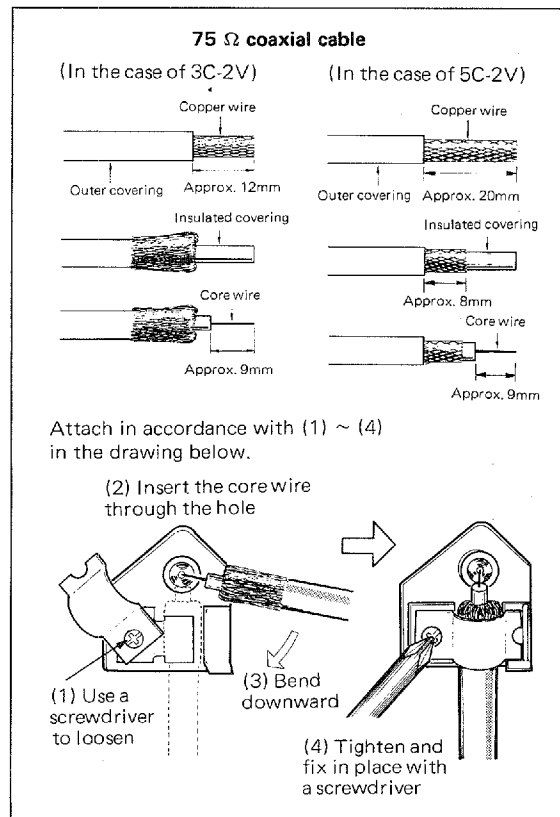


CONNECTIONS

■ CONNECTING THE FM ANTENNA

To receive FM broadcasts clearly, it is ideal to position the FM outdoor antenna in accordance with the strength of the signal transmitted.

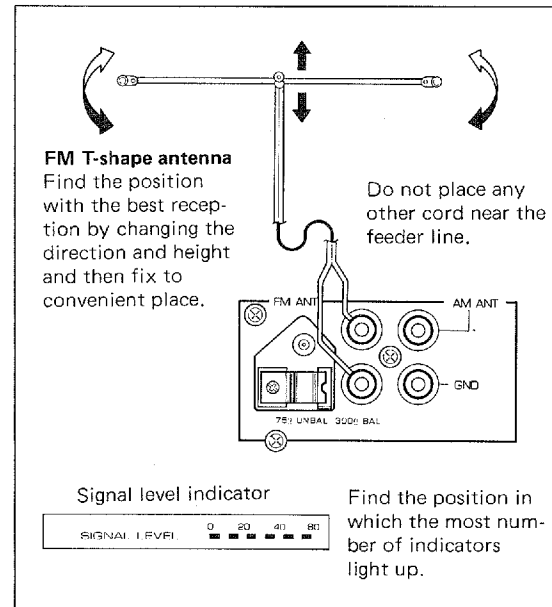
There are two kinds of connections for the FM antenna, the 75 Ω coaxial cable and the 300 Ω balanced feeder line. Of these, the 75 Ω coaxial cable (3C-2V and 5C-2V) is more effective in reducing automobile and motorcycle ignition noises and other outside noises.



■ TO CONNECT THE FM T-SHAPE ANTENNA

The T-shape antenna should be used in areas near broadcasting stations where the signals are sufficiently strong.

Connect the antenna feeder line to the 300 Ω jack of the rear panel; after pulling taut select the direction with the best reception while looking at the signal level indicator and then fix to the wall or other suitable location.

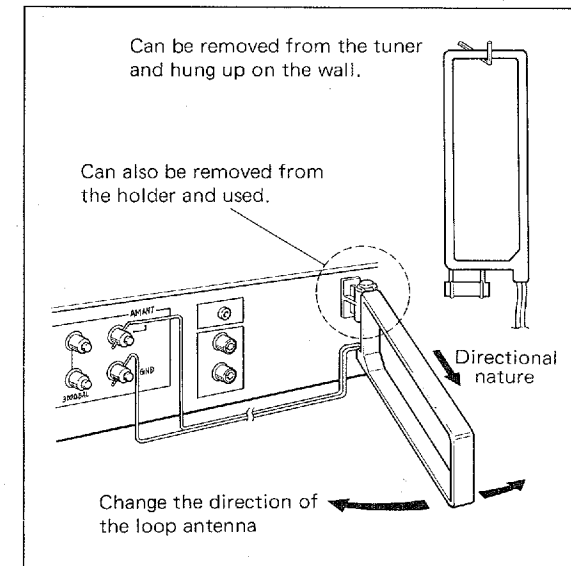


■ TO CONNECT THE AM ANTENNA

1. AM loop antenna

Connect the AM loop antenna to the AM antenna jack and while looking at the signal indicator turn the loop antenna to the left and right to find the direction with the best reception.

The loop antenna can also be removed from the holder and hung on the wall, or other place.

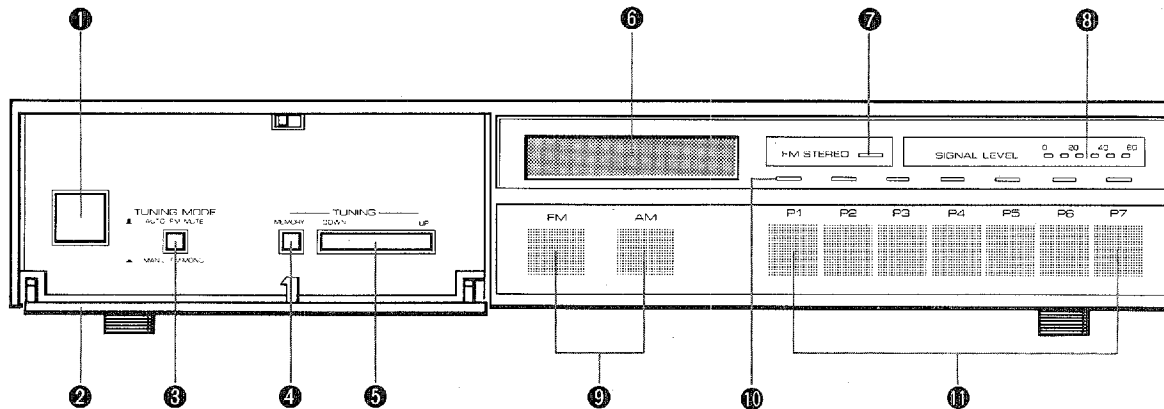


2. AM Lead Antenna

If reception is still poor even after adjusting the loop antenna connect a vinyl covered wire to the AM antenna jack and extend outdoors 5 ~ 10 meters.

TX-77

FRONT PANEL PARTS AND FUNCTIONS

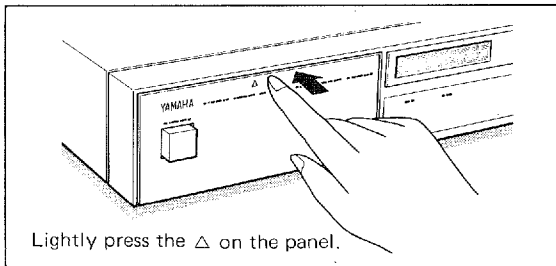


1 POWER SWITCH

When this switch is pressed, the power will be turned on and a lamp inside the switch will light up. When pressed again the power will go off and the lamp will go out. When the power is turned on, the station which was tuned in before the power was turned off will be received. (Last Channel Memory).

2 HINGED PANEL

When the hinged panel is closed the switches not normally used will be out of sight, leaving a clean panel face. To open the panel, lightly press the Δ at the top part of the panel.



Lightly press the Δ on the panel.

3 TUNING MODE SWITCH

• Auto/FM Mute Position

When the tuning button is pushed, the tuner will tune in that direction until a station is found, at which point it will stop. Also, the muting circuit will activate and noises arising from FM broadcasting stations will be eliminated.

• MAN'L/FM MONO Position

When the tuning button is pressed on and off at this position the frequency will change in steps of 0.1 MHz for FM and 9 kHz for AM. Distant stations and weak stations cannot be received with AUTO and so must be received with MAN'L (Manual).

In addition, at this position FM stereo broadcasts can be received in mono.

4 MEMORY BUTTON

When this button is pressed, the word "MEMORY" will light up for 5 seconds inside the frequency indicator, allowing you to preset a station.

Refer to the procedures for presetting stations on Page 6.

5 TUNING BUTTON

When the DOWN side is pressed, the frequency shown on the frequency indicator will decrease and when the UP side is pressed it will increase. If the TUNING MODE switch is set to AUTO tuning will automatically stop when a station is tuned in (Auto Search Tuning).

6 FREQUENCY INDICATOR

The frequency of the broadcast (FM or AM) tuned in is shown digitally.

7 FM STEREO INDICATOR

Lights when an FM broadcast is in stereo. Will not light if the Tuning Mode Switch is in the Mono mode.

PRESETTING AND TUNING

⑧ SIGNAL LEVEL INDICATORS

When tuning in stations, tuning should be done so that as many indicators as possible light up. Also, when setting up the antenna, orient it so that as many indicators as possible light up.

Signal level indication



Indicates strength of the signal received when deciding on the position of the FM antenna and the AM antenna. A position should be selected where the most indicators will light up.

⑨ BAND SELECTOR

Select either the FM band or the AM band. When FM is pressed, the frequency indicator will show MHz and when AM is pressed it will show kHz.

⑩ PRESET INDICATORS

When a preset button is pressed the indicator corresponding to that button will light up.

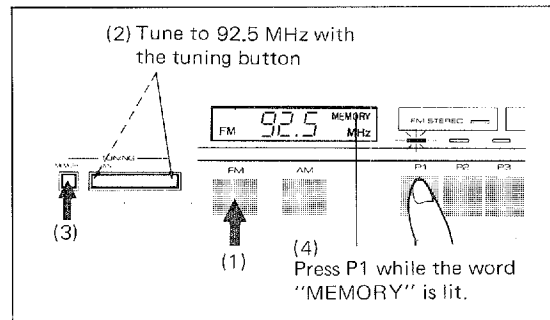
⑪ PRESET BUTTONS

Up to 7 FM stations and 7 AM stations, a total of 14 stations, can be preset and the preset stations can be selected at a single touch (preset tuning).

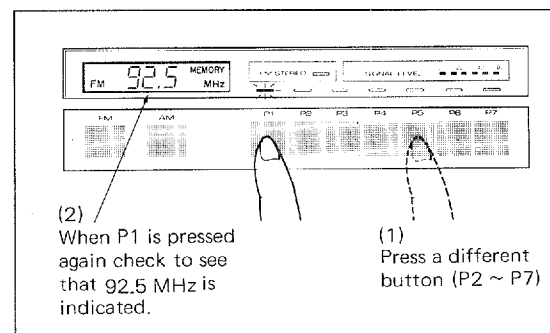
■ PROCEDURES FOR PRESETTING STATIONS

Example: presetting a station at 92.5 MHz with Preset Button P1.

1. Tune to FM with the band selector
2. Press the tuning button so the frequency indicator is at 92.5 MHz (Auto Search Tuning).
3. Press the Memory button and while the word "MEMORY" is lit press preset button P1. (The word "MEMORY" will go out and the indicator over the preset button P1 will light up).



4. To check the memory, press a different preset button and then press button P1 again to see if "92.5 MHz" is indicated.



- AM broadcasts can be preset in the same manner.
- Up to 7 FM stations and 7 AM stations can be programmed into the memory for preset tuning.
- To change the memory, use the same procedures as that for initial presetting. The former memory will be erased and the new stations memorized.

■ TUNING

1. Select either FM or AM with the band selector.
2. By pressing a preset button (P1 ~ P7) the desired station can be tuned in. The amp will automatically switch to "TUNER", so only the volume need be adjusted.

* Alternatively, the tuning button can be used for Auto Search Tuning or manual tuning.

■ MAINTAINING THE MEMORY

So as not to erase the memory that has been preset there is a built-in memory back-up circuit, so even though the power may be cut off temporarily due to a power failure or turning the power switch off, the memory will not be erased.

However, if left unused for a long period of time the memory may become erased. In this case, the stations will have to be reprogrammed.



TROUBLESHOOTING

Before assuming that your tuner is faulty, check the following troubleshooting list which details 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.

	Fault	Cause	Cure
FM	Crackling sounds from time to time (especially in weak signal areas).	Ignition noise from 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.
	The 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 switch to the Mono position.
	The FM Stereo indicator flickers on and off and reception is noisy.	Insufficient antenna input.	Use an antenna appropriate for the reception conditions in your area.
		Not tuned correctly.	Tune again.
	There is distortion and clear reception can not 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 switch is set to Mono.	Set the Tuning Mode switch properly.
The Signal Quality Indicator lights up but there is no sound.	The muting circuit has turned off the sound because the received station is very weak.	Set the Tuning Mode switch to the Mono position to disable muting.	
AM	Insufficient sensitivity.	Weak signal or loose antenna connections.	Tighten the AM loop antenna connections and rotate it for best reception.
			Use an outdoor antenna.
	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 groundwire. This will help somewhat 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.	Change direction of loop antenna.
A television set is being used nearby.		Move the television a distance away.	

TX-77

SPECIFICATIONS

● FM Section

Tuning Range	87.9 ~ 107.9 MHz
50 dB Quieting Sensitivity	
MONO	3.1 μ V (15.1 dBf)
STEREO	42 μ V (37.7 dBf)
Usable Sensitivity (MONO, 98 MHz, 30 dB Quieting)	
75 Ω	0.8 μ V (9.3 dBf)
300 Ω	1.6 μ V (9.3 dBf)
Image Response Ratio	40 dB
IF Response Ratio	100 dB
Spurious Response Ratio	80 dB
AM Suppression Ratio (IHF)	55 dB
Capture Ratio (IHF MONO)	1.5 dB
Alternate Channel Selectivity (IHF)	85 dB
Signal-to-Noise Ratio (IHF)	
MONO	81 dB
STEREO	76 dB
Harmonic Distortion	
MONO (1 kHz)	0.1%
STEREO (1 kHz)	0.2%
Stereo Separation (1 kHz)	40 dB
Frequency Response (50 Hz ~ 10 kHz)	0 \pm 0.5 dB
Sub-carrier Product Ratio	35 dB
Muting Threshold	10 μ V (25.2 dBf)
Meter Saturation Level	100 μ V (47.5 dBf)

● AM Section

Tuning Range	530 ~ 1,620 kHz
Usable Sensitivity (IHF)	10 μ V
Selectivity	24 dB
Signal-to-Noise Ratio	50 dB
Image Response Ratio	40 dB
Spurious Response Ratio	50 dB
Harmonic Distortion (400 Hz)	0.5%

● Audio Section

Output Level/Impedance

FM (100% Mod. 1 kHz)	500 mV/2 K-ohms
AM (30% Mod. 400 Hz)	150 mV/2 K-ohms

● General

Power Supplies	AC 14.5 V, 60 Hz
Power Consumption	5 W
Dimensions (W x H x D)	340 x 67 x 272 mm (13-3/8 x 2-5/8 x 10-11/16")
Weight	2 kg (4.4 lbs)
Accessories	AM loop antenna, FM antenna, Sub-power plug, 3P connection plug.

* Specifications subject to change without notice.

SINCE 1887  **YAMAHA**
NIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN