

YAMAHA T-85

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

Thank you for purchasing the YAMAHA T-85 AM/FM stereo tuner.



OWNER'S MANUAL



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IMPORTANT

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

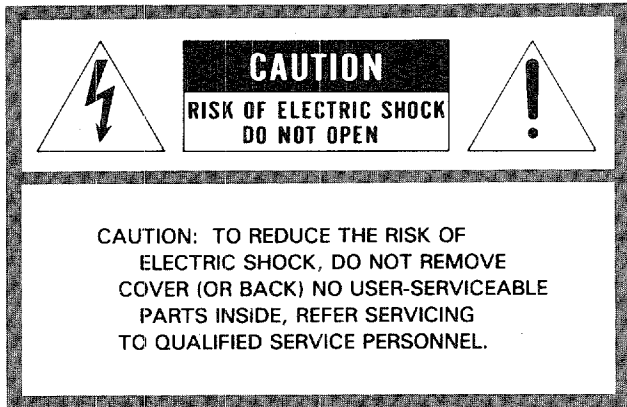
Model: **T-85**
Serial No:

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

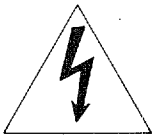
WARNING

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

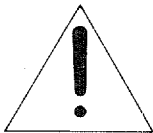
SAFETY INSTRUCTIONS



• 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** 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** Head 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 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.

CAUTION: READ THIS BEFORE OPERATING YOUR T-85

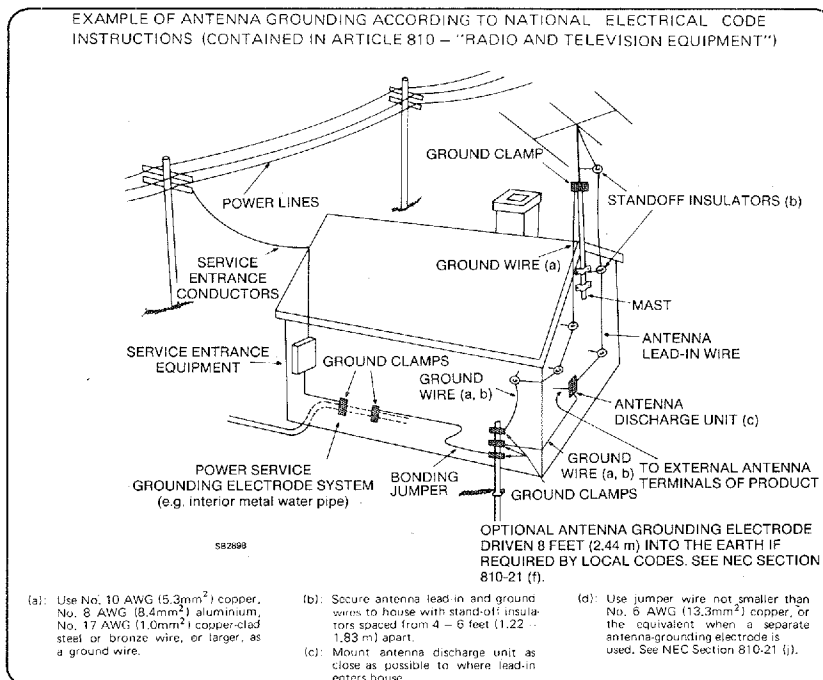
16 Servicing — The user should not attempt to service the appliance beyond those means described in the operating instructions. All other servicing should be referred to qualified service personnel.

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

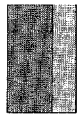
18 Grounding or Polarization — The precautions that should be taken so that the grounding or polarization means of an appliance is not defeated.

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.

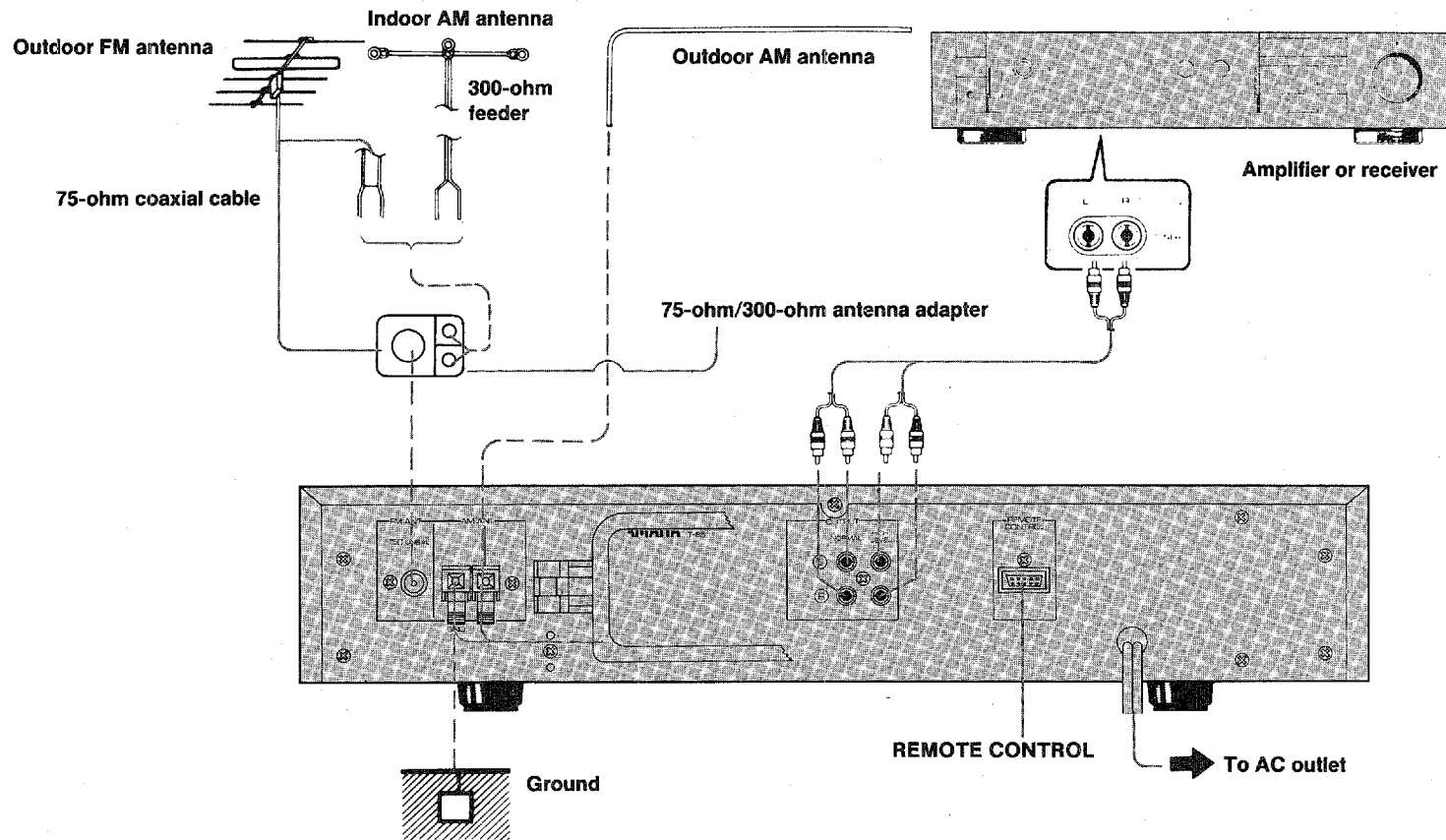


1. The T-85 is a sophisticated AM/FM stereo tuner. To ensure proper operation for the best possible performance, please read this manual carefully.
2. Choose the installation location of your T-85 carefully. Avoid placing it in direct sunlight or close to a source of heat. Also avoid locations subject 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 T-85 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 T-85 is faulty.
10. Keep this manual in a safe place for future reference.



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CONNECTIONS





■ OUTPUT jacks

The tuner output can be selected between HIGH LEVEL and NORMAL. For normal operation, connect the NORMAL OUTPUT jacks to amplifier or receiver.

■ 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.

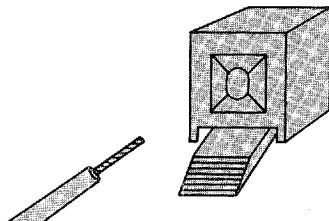
■ AM ANTENNAS

● AM loop antenna

Connect the AM loop antenna cords to the AM ANT and GND terminals and locate the AM loop antenna for best reception.

● 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

● 75-ohm coaxial cable connection

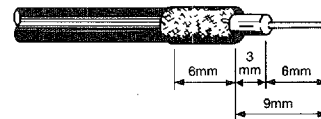
After stripping the end of your coaxial cable and connect to the supplied 75-ohm/300-ohm antenna adapter. Then insert the plug of the antenna adapter into the FM ANT terminal on the rear panel. At this time, the ring in the 75-ohm/300-ohm antenna adapter should be attached onto the boss of the antenna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

● 300-ohm feeder connection

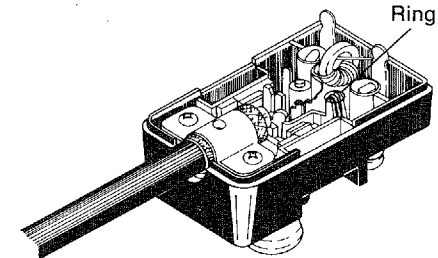
The unit can also accept a 300-ohm indoor antenna or 300-ohm feeder by using the supplied 75-ohm/300-ohm antenna adapter. Connect the wires to the terminals on the adapter, then insert it into the FM ANT terminal on the rear panel. To connect the 300-ohm feeder, attach the ring to the contacts. If the ring is not attached, the sensitivity decreases.

● 75-ohm/300-ohm antenna adapter

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.

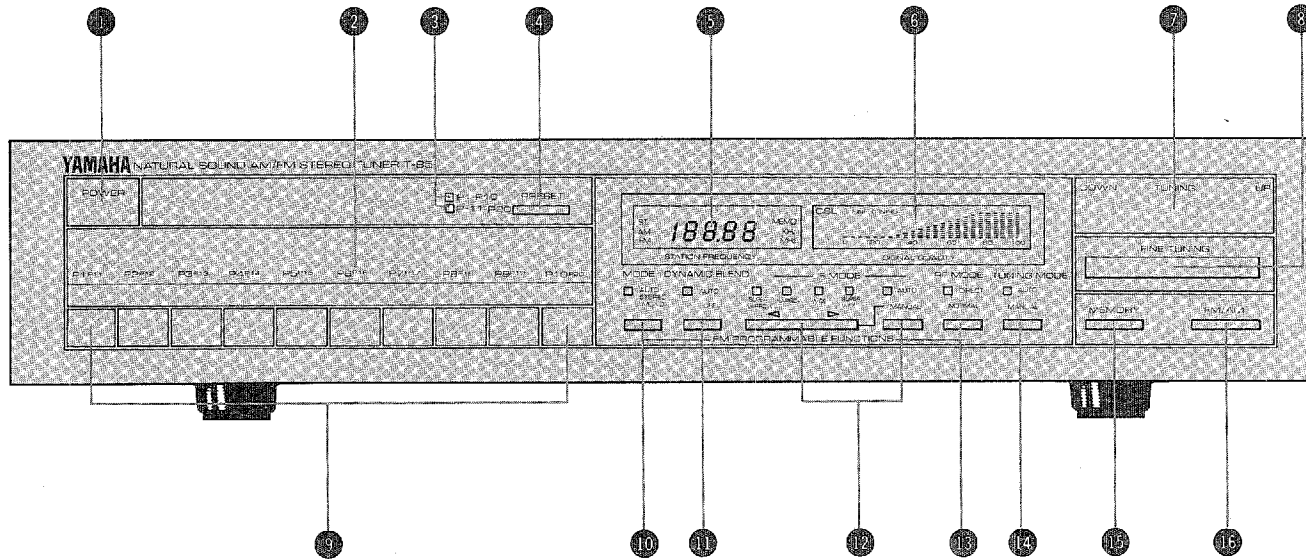


■ REMOTE CONTROL terminal

With the REMOTE CONTROL terminal on the rear of the T-85, system remote control through the amplifier is possible. Connect the terminal to the amplifier with the flat cable supplied to the amplifier. For details of operation, refer to the Owner's Manual of the amplifier.

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FRONT PANEL PARTS AND FUNCTIONS



1 POWER switch

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

2 Preset station indicators

Lights up to indicate the pressed preset station button.

3 P1-P10/P11-P20 indicators

Indicates the range of the preset station buttons.

4 PRESET button

Press this button to change the range of the preset station buttons. When this button is pressed, the selected range of the P1-P10/P11-P20 indicators flickers for about 5 seconds.

5 STATION FREQUENCY display

Displays the band and frequency of the received frequency. When an FM stereo broadcast with a sufficient signal strength is received, the ST (stereo) indicator lights up. When the MEMORY button is pressed, the MEMO indicator lights up.

**6 SIGNAL QUALITY indicator**

Indicates the level of the received frequency. If the multipath interference is detected, the level of the signal quality indication decreases. When signal of sufficient signal strength is locked, the CSL (Computer Servo Lock) indicator lights up. When the FINE TUNING button is operated, the FINE TUNING indicator lights up.

7 TUNING button

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

8 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.

9 Preset station buttons

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

10 MODE button and indicator

Used to select the FM reception mode.

AUTO STEREO: 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.

11 DYNAMIC BLEND button and indicator

With this button set to AUTO, as the S/N ratio of the stereo signal is less than about 50 dB, the right and left channel is blended accordingly. When the MODE button is set to MONO, the dynamic blend function does not work even when this button is set to AUTO.

12 IF MODE buttons and indicator

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

AUTO/MANUAL 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.

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 or SUPER 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.

13 RF MODE button and indicator

Used to decrease the RF cross modulation and intermodulation.

DIRECT: When the reception signal is strong, set to this position to decrease the RF cross modulation and intermodulation.

NORMAL: To receive the distant FM broadcast, set to this position to obtain better S/N ratio.

14 TUNING MODE button and indicator

Used to select the tuning mode between AUTO and MANUAL. The indicator above the button lights up for auto tuning mode.

15 MEMORY button

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

16 FM/AM button

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

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 button.
2. Press the TUNING MODE button so that the indicator above the button lights up.
3. For FM reception, set the RF MODE, IF MODE, DYNAMIC 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 be impossible 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 RF MODE, IF MODE, DYNAMIC BLEND and MODE buttons.
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.

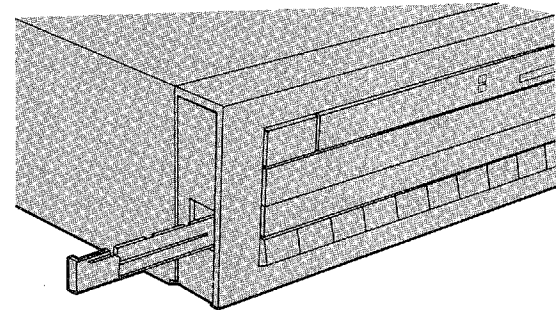
1. Tune to the desired station using auto or manual tuning mode.
 2. Select the range of the preset station button with the PRESET button.
 3. Press the MEMORY button and then while the MEMO indicator is flickering, press the desired preset station button.
 4. To receive the preset station, select the 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 RF MODE, IF MODE, DYNAMIC 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.

● FM/AM STATION CARD

These can be used to mark preset station. Slip out the holder (above the preset station buttons) and change the cards as desired.



● 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 or other temporary power failure. If, however, the unit is not used for a long time, 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), 75 ohms	
Mono	1.6 μ V (15.3 dBf)
Stereo	20 μ V (37.2 dBf)
Usable Sensitivity	
(30 dB Quieting, SUPER NARROW)	
75 ohms	0.9 μ V (10.3 dBf)
Image Response Ratio	95 dB
Spurious Response Ratio	110 dB
AM Suppression Ratio	70 dB
Alternate Channel Selectivity	90 dB
Signal-to-Noise Ratio	
(IHF)	
Mono	98 dB
Stereo	90 dB
Distortion:	
Mono:	
1 kHz	0.02% (SUPER WIDE)
Stereo:	
1 kHz	0.03% (SUPER WIDE)
Stereo Separation	
1 kHz	68 dB (SUPER WIDE)
Frequency response:	
50 Hz to 10 kHz	+0.2 dB, -0.3 dB
20 Hz to 15 kHz	+0.2 dB, -0.5 dB
Subcarrier Product Ratio	65 dB

AM SECTION

Tuning Range	530 — 1,620 kHz
Usable Sensitivity	250 μ V/m
Selectivity	30 dB
Signal-to-Noise Ratio	55 dB
Image Response Ratio	40 dB
Spurious Response Ratio	50 dB
Distortion	0.2 %

AUDIO SECTION

Output Level/Impedance:

(NORMAL)

FM (100% mod., 1 kHz) 0.5 V/2.6 k-ohm

AM (30% mod., 400 Hz) 0.15 V/2.6 k-ohm

(HIGH LEVEL)

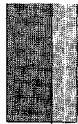
FM (100% mod., 1 kHz) 1 V/1 k-ohm

AM (30% mod., 400 Hz) 0.3 V/1 k-ohms

GENERAL

Power Supply	AC 120 V, 60 Hz
Power Consumption	17 W
Dimensions (W x H x D)	435 x 93.5 x 357 mm
	(17-1/8" x 3-6/8" x 14")
Weight	5 kg (11 lbs.)

Specifications subject to change without notice.



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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 MANUAL 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 MANUAL.	● 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.	● 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.	

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