# YAMAHATX-492

Natural Sound AM/FM Stereo Tuner

Syntonisateur AM/FM stéréo de la série "Natural Sound"

# **OWNER'S MANUAL**

Thank you for selecting this YAMAHA stereo tuner.

# **MODE D'EMPLOI**

Nous vous remercions pour avoir porté votre choix sur ce syntonisateur stéréo YAMAHA.

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# SAFETY INSTRUCTIONS



### 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.

### **WARNING**

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

- 1 Read Instructions All the safety and operating instructions should be read before the unit is operated.
- 2 Retain Instructions The safety and operating instructions should be retained for future reference.
- 3 Heed Warnings All warnings on the unit and in the operating instructions should be adhered to.
- 4 Follow Instructions All operating and other instructions should be followed.
- Water and Moisture The unit 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 unit should be used only with a cart or stand that is recommended by the manufacturer.
- **6A** A unit and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the unit and cart combination to overturn.



- Wall or Ceiling Mounting The unit should be mounted to a wall or ceiling only as recommended by the manufacturer.
- Ventilation The unit should be situated so that its location or position does not interfere with its proper ventilation. For example, the unit 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 unit should be situated away from heat sources such as radiators, stoves, or other appliances that produce heat.
- 10 Power Sources The unit should be connected to a power supply only of the type described in the operating instructions or as marked on the unit.
- 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 unit.
- **12** Cleaning The unit should be cleaned only as recommended by the manufacturer.
- 13 Nonuse Periods The power cord of the unit 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 are not spilled into the inside of the unit.
- 15 Damage Requiring Service The unit 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 unit; or
  - C. The unit has been exposed to rain; or
  - **D.** The unit does not appear to operate normally or exhibits a marked change in performance; or
  - **E.** The unit has been dropped, or the cabinet damaged.
- 16 Servicing The user should not attempt to service the unit 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 Precautions should be taken so that the grounding or polarization is not defeated.

### 19 For US customers only:

Outdoor Antenna Grounding – If an outside antenna is connected to this unit, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard 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.

### 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.

# ANTENNA LEAD IN WIRE GROUND CLAMP ANTENNA DISCHARGE UNIT (NEC SECTION 810-20) GROUNDING CONDUCTORS (NEC SECTION 810-21) GROUND CLAMPS POWER SERVICE GROUNDING (NEC SECTION 810-21)

NEC - NATIONAL ELECTRICAL CODE

**EXAMPLE OF ANTENNA GROUNDING** 

# SPECIAL NOTES FOR FCC COMPOSITE DEVICE (for US customers only)

This device is a composite system. The digital device component may not cause harmful interference.

### FCC INFORMATION (for US customers only)

### 1. IMPORTANT NOTICE: DO NOT MODIFY THIS UNIT!

This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product.

- 2. IMPORTANT: When connecting this product to accessories and/or another product use only high quality shielded cables. Cable/s supplied with this product MUST be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.
- 3. NOTE: This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class "B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices.

This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices.

Compliance with FCC regulations does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determined by turning the unit "OFF" and "ON", please try to eliminate the problem by using one of the following measures:

Relocate either this product or the device that is being affected by the interference.

Utilize power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter/s.

In the case of radio or TV interference, relocate/reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to coaxial type cable.

If these corrective measures do not produce satisfactory results, please contact the local retailer authorized to distribute this type of product. If you can not locate the appropriate retailer, please contact Yamaha Electronics Corp., U.S.A. 6660 Orangethorpe Ave, Buena Park, CA 90620.

The above statements apply ONLY to those products distributed by Yamaha Corporation of America or its subsidiaries.

### We Want You Listening For A Lifetime (for US customers only)

YAMAHA and the Electronic Industries Association's Consumer Electronics Group want you to get the most out of your equipment by playing it at a safe level. One that lets the sound come through loud and clear without annoying blaring or distortion – and, most importantly, without affecting your sensitive hearing.

Since hearing damage from loud sounds is often undetectable until it is too late, YAMAHA and the Electronic Industries Association's Consumer Electronics Group recommend you to avoid prolonged exposure from excessive volume levels.



# **CAUTION: READ THIS BEFORE OPERATING YOUR UNIT.**

- This unit is a sophisticated stereo tuner. To assure proper operation and the best possible performance, please read this manual carefully.
- 2. Choose the installation location for the unit 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, because this may result in damage to the unit or electrical shock. If a foreign object should get into the unit, contact your local dealer.
- 4. When not planning to use this unit for long periods of time (ie., vacation, etc.), disconnect the AC power plug from the wall outlet.
- To prevent lightning damage, disconnect the AC power plug and disconnect the antenna cable when there is an electrical storm.
- When disconnecting the power plug from the wall outlet, always pull directly on the plug; never pull the cord itself.
- Do not use force when operating switches and other controls.
- **8.** When moving the unit, be sure to first disconnect the power plug and disconnect all wires connected from the unit to other equipment.
- Do not attempt to clean this unit with chemical solvents, because this may damage the finish. Use a clean, dry cloth.
- 10. Be sure to read the "TROUBLESHOOTING" section of this manual for advice on common operating errors before concluding that the unit is faulty.
- **11.** Keep this manual in a safe place for future reference.
- 12. Voltage Selector (General Model only) The voltage selector on the rear panel of this unit must be set for your local main voltage BEFORE plugging into the AC main supply. Voltages are 110-120/220-240V AC, 50/60 Hz.

### FREQUENCY STEP switch (General Model only)

Because the interstation frequency spacing differs in different areas, set the FREQUENCY STEP switch (located at the rear) according to the frequency spacing in your area. Before setting this switch, disconnect the AC power plug of this unit from the AC outlet.

The apparatus is not disconnected from the AC power source as long as it is connected to the wall outlet, even if the apparatus itself is turned off.

### **IMPORTANT**

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

### 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 REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

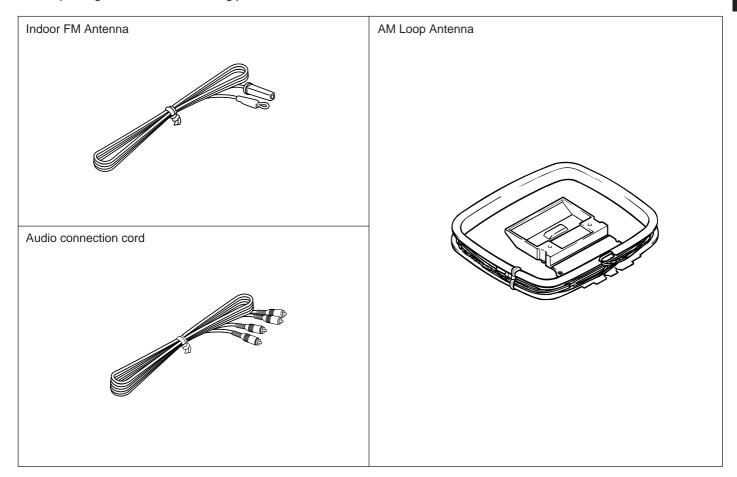
### FOR CANADIAN CUSTOMERS

TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT AND FULLY INSERT.

THIS CLASS B DIGITAL APPARATUS MEETS ALL REQUIREMENTS OF THE CANADIAN INTERFERENCE-CAUSING EQUIPMENT REGULATIONS.

# **SUPPLIED ACCESSORIES**

After unpacking, check that the following parts are contained.



# **FEATURES**

- 40 Station Random Access Preset Tuning
- Automatic Preset Tuning
- Multi-Status Station Memory

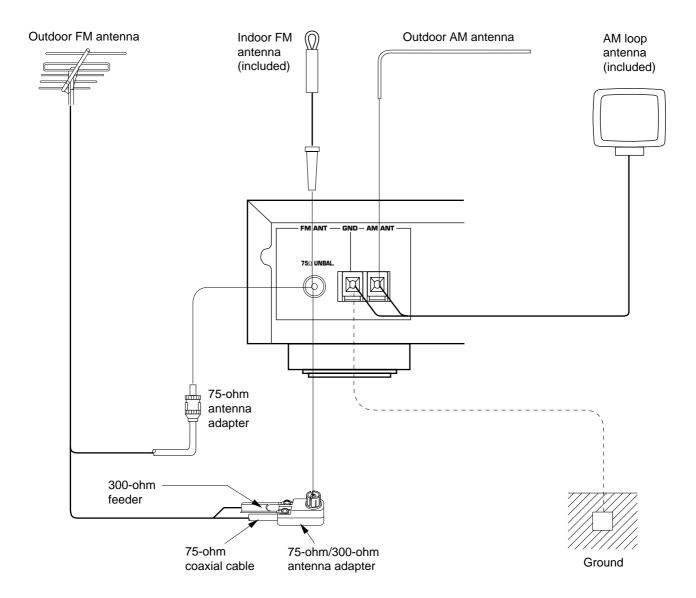
- Direct PLL Synthesizer Tuning
- Preset Station Shifting Capability (Preset Editing)

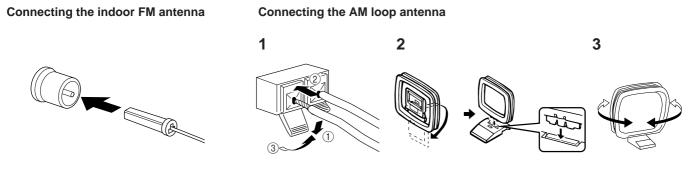
# **CONNECTIONS**

Never plug in this unit and other components until all connections are completed.

### **ANTENNA CONNECTIONS**

- Each antenna should be connected to the designated terminals correctly, referring to the following figure.
- Both AM and FM indoor antennas are included with this unit. In general, these antennas will probably provide sufficient signal strength. Nevertheless, a properly installed outdoor antenna will give clearer reception than an indoor one. If you experience poor reception quality, an outdoor antenna may result in improvement.





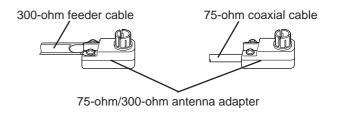
- Orient so that the best reception is obtained.
- \* If you connect an outdoor FM antenna to this unit, do not connect the indoor FM antenna to this unit.
- \* The AM loop antenna should be placed apart from the main unit. The antenna may be hung on a wall.
- \* The AM loop antenna should be kept connected, even if an outdoor AM antenna is connected to this unit.

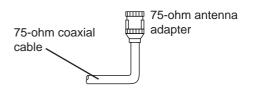
### Optional outdoor FM antenna

Consult with your dealer or authorized service center about the best method of selecting and erecting an outdoor FM antenna. The choice of the feeder cable is also important. Flat ribbon-shaped twin-lead cable performs well electrically, and is cheaper and somewhat easier to handle when routing it through windows and around rooms. Coaxial cable is more expensive, does a much better job of minimizing interference, is less prone to the effects of weather and close-by metal objects, and is nearly as good a signal conductor as feeder cable, particularly for foam-type coaxial cables. Coaxial cable is somewhat more difficult to install at the point where the cable enters the building. If coaxial cable is selected, make sure the antenna is designed to be used with that type of cable.



\* Use a 75-ohm/300-ohm antenna adapter (not included) or a 75-ohm antenna adapter (not included) for connections.





### Notes for FM antenna installation

- To minimize automobile ignition noise, locate the antenna as far from heavy traffic as possible.
- Keep the feeder cable or coaxial cable as short as possible.
   Do not bundle or roll up excess cable.
- The antenna should be at least two meters (6.6 feet) from reinforced concrete walls or metal structures.

### Optional outdoor AM antenna

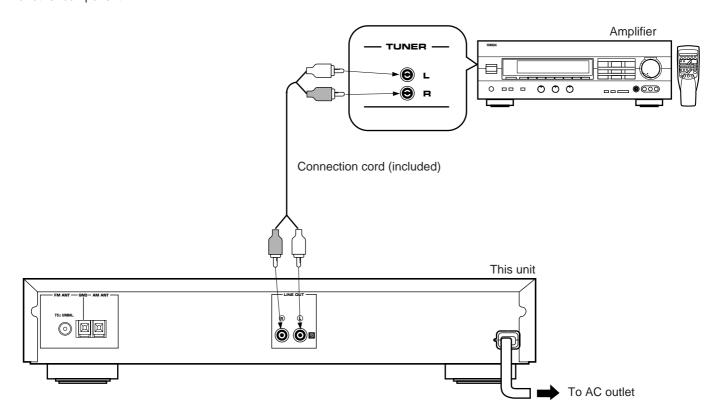
In steel buildings or at a great distance from the transmitter, it may be necessary to install an outside long wire antenna.

### **GND** terminal

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

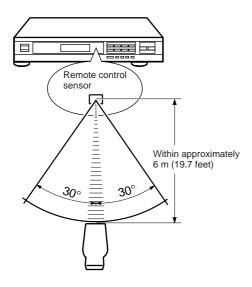
### **CONNECTIONS TO THE AMPLIFIER**

- Before making any connections, switch OFF the power to this unit and the amplifier or other component.
- Be sure that the connections from the left ("L") and right ("R") LINE OUT terminals are connected to the corresponding (left and right) input terminals of the amplifier or other component.
- If you have a YAMAHA amplifier whose terminals on the rear panel are numbered as 1, 2, 3, etc., connections can be made easily by making sure to connect the LINE OUT terminals of this unit to the input terminals of the amplifier numbered 2.



# NOTES ABOUT CONTROLLING THIS UNIT WITH THE REMOTE CONTROL TRANSMITTER

This unit has a remote control sensor. It receives signals from a remote control transmitter provided with a YAMAHA amplifier or receiver.

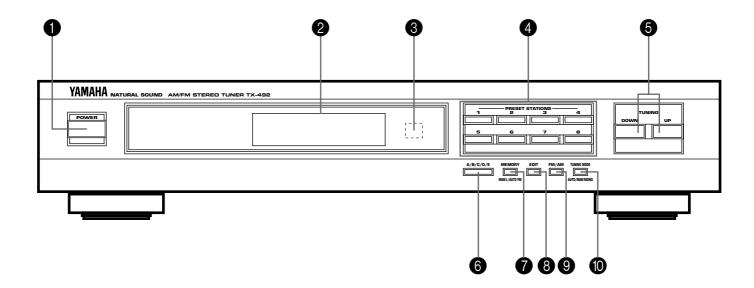


### **Notes**

- There should be no large obstacles between the remote control transmitter and the main unit.
- If the remote control sensor is directly illuminated by strong lighting (especially an inverter type of fluorescent lamp etc.), it might cause the remote control transmitter not to work correctly. In this case, reposition the main unit to avoid direct lighting.

# CONTROLS AND THEIR FUNCTIONS

### **FRONT PANEL**



### 1 POWER switch

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

### 2 Display panel

Shows station frequencies and various information. (Refer to the next page for details.)

### 3 Remote control sensor

Receives signals from a remote control transmitter provided with a YAMAHA amplifier or receiver.

### 4 PRESET STATIONS buttons

Select a preset station number (1 to 8).

### **5** TUNING DOWN and UP buttons

Used for tuning. Press the "**UP**" button to tune in to higher frequencies, and press the "**DOWN**" button to tune in to lower frequencies.

### 6 A/B/C/D/E button

Press this button to select a desired group (A–E) of preset stations.

### MEMORY (MAN'L/AUTO FM) button

When this button is pressed, the MEMO indicator flashes for about 5 seconds. During this period, press the desired **PRESET STATIONS** button to enter the displayed station into the memory.

When this button is pressed and held for about 3 seconds, the automatic preset tuning begins. (Refer to page 11 for details.)

### 8 EDIT button

This button is used to exchange the places of two preset stations with each other.

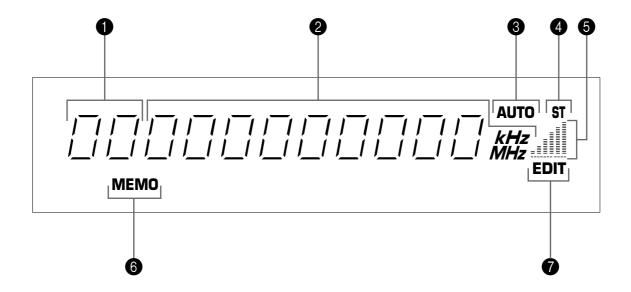
### 9 FM/AM button

Press this button to switch the reception band to FM or AM.

### TUNING MODE (AUTO/MAN'L MONO) button

Press this button to switch the tuning mode to automatic or manual. To select the automatic tuning mode, press this button so that "AUTO" lights up on the display. To select the manual tuning mode, press this button so that "AUTO" goes off.

### **DISPLAY PANEL**



### 1 Preset station indicator

Display the group (A/B/C/D/E) and the number (1 to 8) of a preset station.

### 2 Station frequency display

Displays the band and frequency or information from the received station.

### 3 AUTO indicator

Lights up when this unit is in the automatic tuning mode.

### 4 ST (STEREO) indicator

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

### **5** Signal-level meter

Indicates the signal level of the received station.

If multipath interference is detected, the indication decreases.

### **6** MEMO indicator

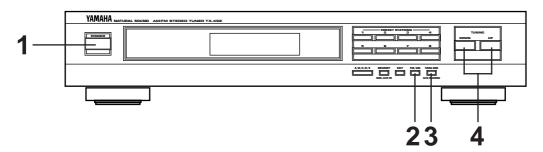
When the **MEMORY** button is pressed, this indicator flashes for about 5 seconds. During this period, the displayed station can be programmed to the memory by using the **A/B/C/D/E** button and one of the **PRESET STATIONS** buttons.

### **T** EDIT indicator

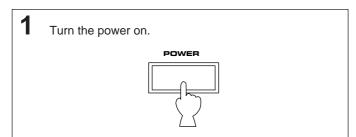
Flashes by the first press of the **EDIT** button when you will exchange preset stations, and lights up for a moment by the second press of the **EDIT** button to show that the exchange has succeeded.

# **TUNING OPERATIONS**

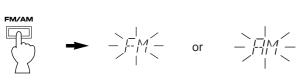
Normally, if station signals are strong and there is no interference, quick automatic-search tuning (AUTOMATIC TUNING) is possible. However, if signals of the station you want to select are weak, you must tune to it manually (MANUAL TUNING).



### **AUTOMATIC TUNING**



2 Select the reception band (FM or AM) confirming it on the display.





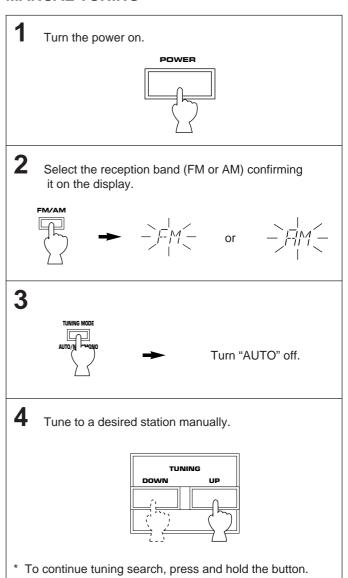
TUNING DOWN UP

To tune to a higher frequency, press the UP button.

To tune to a lower frequency, press the DOWN button.

- \* If the station where tuning search stops is not the desired one, press again.
- \* If the tuning search does not stop at the desired station (because the signals of the station are weak), change to the MANUAL TUNING method.

### **MANUAL TUNING**



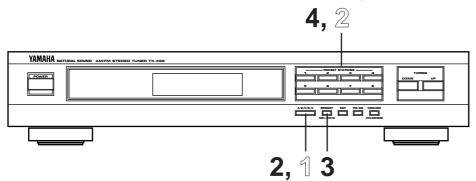
### Note

If you tune to an FM station manually, it is received in monaural mode automatically to increase the signal quality.

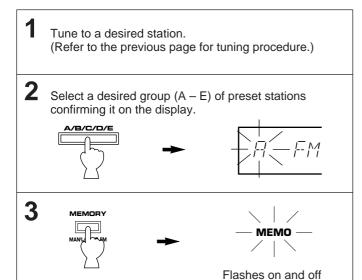
# **PRESET TUNING**

### MANUAL PRESET TUNING

This unit can store station frequencies selected by tuning operation. With this function, you can recall any desired station by only selecting the preset station number where it is stored. Up to 40 stations (8 stations x 5 groups) can be stored.

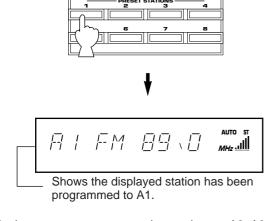


### To store stations



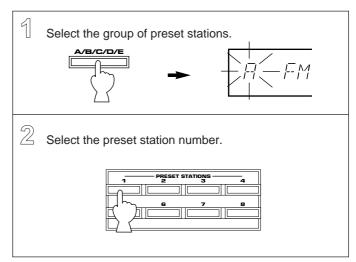
Select a preset station number where you want to program the station before "MEMO" goes off from the display.

for about 5 seconds.



\* In the same way, program other stations to A2, A3 ... A8.
\* You can program more stations to preset station numbers on other groups in the same way by selecting other groups in step 2.

### To recall a preset station



### **Notes**

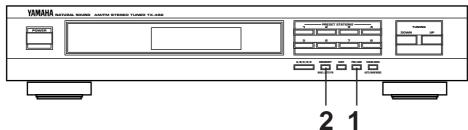
- A new setting can be programmed in place of the former one.
- For presets, the setting of the reception mode (stereo or monaural) is stored along with the station frequency.

### Memory back-up

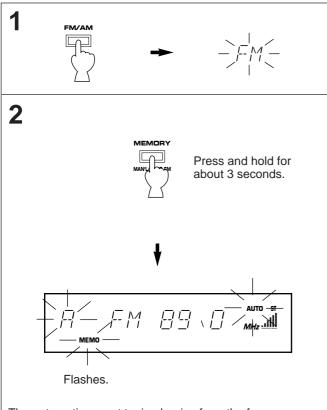
The memory back-up circuit prevents the programmed data from being lost even if the **POWER** switch is set off or the power plug is disconnected from the AC outlet or the power is cut due to temporary power failure. If, however, the power is cut for more than one week, the memory may be erased. If so, it can be re-programmed by simply following the PRESET TUNING steps.

### **AUTOMATIC PRESET TUNING**

You can also make use of an automatic preset tuning function for FM stations only. By this function, this unit performs automatic tuning and stores FM stations with strong signals sequentially. Up to 40 stations are stored automatically in the same way as in the manual preset tuning method on page 10.



### To store stations



The automatic preset tuning begins from the frequency currently displayed. Received stations are programmed to A1, A2 ... A8 sequentially.

\* If more than 8 stations are received, they are also programmed to the preset station numbers on other groups (B, C, D and E) in that order.

### When the automatic preset tuning is finished

The display shows the frequency of the last preset station. Check the contents and the number of preset stations by following the procedure of the section "To recall a preset station" on page 10.

### To recall a preset station

Simply follow the procedure of the section "To recall a preset station" on page 10.

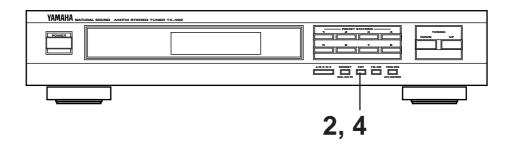
A recalled station is shown by the frequency or station name on the display.

### Notes

- You can replace a preset station by another FM or AM station manually by simply following the procedure of the section "To store stations" on page 10.
- The automatic preset tuning search will be performed through all frequencies until stations are stored up to E8. If the number of received stations is not enough to be stored up to E8, the search is finished automatically after searching all frequencies.
- With this function, only FM stations with sufficient signal strength are stored automatically. If the station you want to program is weak in signal strength, tune in to it with the MANUAL TUNING method (in monaural) and program it by following the procedure of the section "To store stations" on page 10.
- If no station is received by the automatic preset tuning search, the search finishes after "NOTHING" flashes for about 3 seconds on the display.

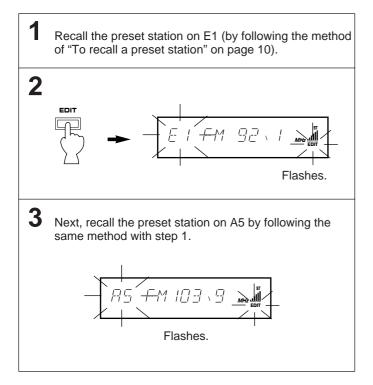
### **EXCHANGING PRESET STATIONS**

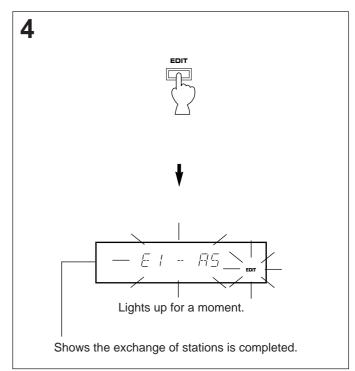
You can exchange the places of two preset stations with each other as shown below.



### Example)

If you want to shift the preset station on E1 to A5, and vice versa.





# **TROUBLESHOOTING**

If the unit fails to operate normally, check the following points to determine whether the fault can be corrected by the simple measures suggested. If it cannot be corrected, or if the fault is not listed in the SYMPTOM column, disconnect the power cord and contact your authorized YAMAHA dealer or service center for help.

	SYMPTOM	CAUSE	REMEDY
H.W.	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 high quality directional FM antenna. Set the TUNING MODE button to the manual tuning 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 the manual tuning mode.	Set the button so that "AUTO" lights up on the display.
	A desired station cannot be tuned in with Automatic tuning.	The station is too weak.	Use the manual tuning mode. Use a 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.
	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 Automatic tuning.		Use the manual tuning mode.
AM	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 somewhat but it is difficult to eliminate all noises.
	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.	Relocate this unit away from the TV.

# **SPECIFICATIONS**

### **FM SECTION**

Tuning Range [U.S.A. and Canada models]87.5 to 107.9 MHz [Australia model]87.5 to 108 MHz
50 dB Quieting Sensitivity (IHF) 75 ohms Mono
Image Response Ratio [U.S.A. and Canada models]
IF Response Ratio70 dB
Spurious Response Ratio [U.S.A. and Canada models]
Alternate Channel Selectivity [U.S.A. and Canada models only]85 dB
Selectivity (two signals, 40 kHz Dev., ±300 kHz) [Australia model only]70 dB
Signal-to-Noise Ratio [U.S.A. and Canada models] (IHF)  Mono
Harmonic Distortion (1 kHz)  Mono
Stereo Separation (1 kHz)50 dB
Frequency Response 30 Hz to 13 kHz0±0.5 dB

### **AM SECTION**

Tuning Range [U.S.A. and Canada models]
AUDIO SECTION
Output Level/Impedance (Fixed) FM (100 % mod. 1 kHz)900 mV/2.2 k-ohms
AM (30% mod. 1 kHz)150 mV/2.2 k-ohms
GENERAL
Power Supply [U.S.A. and Canada models]AC 120V, 60 Hz [Australia model]AC 240V, 50 Hz
Power Consumption7W
Dimensions (W x H x D)435 x 86 x 278 mm (17-1/8" x 3-3/8" x 10-15/16")
Weight
AccessoriesAudio connection cord  AM loop antenna Indoor FM antenna

<sup>\*</sup> Specifications subject to change without notice.

# **YAMAHA**