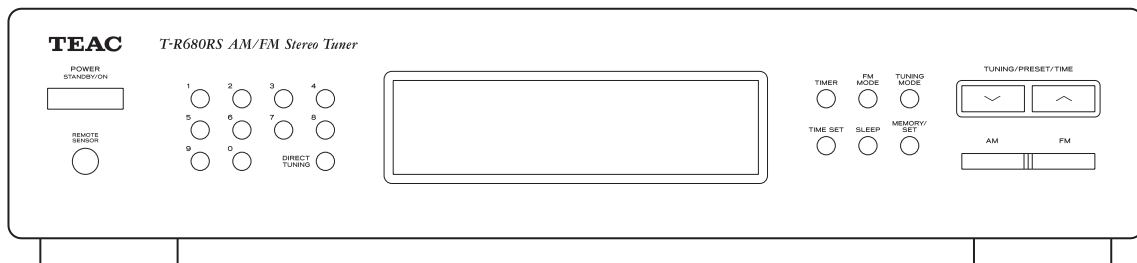


# TEAC

# T-R680RS

## AM/FM Stereo Tuner

### OWNER'S MANUAL





**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.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user 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 the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

## IMPORTANT SAFETY INSTRUCTIONS

- 1) Read these instructions.
  - 2) Keep these instructions.
  - 3) Heed all warnings.
  - 4) Follow all instructions.
  - 5) Do not use this apparatus near water.
  - 6) Clean only with dry cloth.
  - 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
  - 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
  - 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
  - 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
  - 11) Only use attachments/accessories specified by the manufacturer.
  - 12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 
- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
  - 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
    - Do not expose this apparatus to drips or splashes.
    - Do not place any objects filled with liquids, such as vases, on the apparatus.
    - Do not install this apparatus in a confined space such as a book case or similar unit.
    - The apparatus draws nominal non-operating power from the AC outlet with its POWER switch in the off position.
    - The apparatus should be located close enough to the AC outlet so that you can easily grasp the power cord plug at any time.
    - An apparatus with Class I construction shall be connected to an AC outlet with a protective grounding connection.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

### CAUTION

- DO NOT REMOVE THE EXTERNAL CASES OR CABINETS TO EXPOSE THE ELECTRONICS. NO USER SERVICEABLE PARTS ARE WITHIN!
- IF YOU ARE EXPERIENCING PROBLEMS WITH THIS PRODUCT, CONTACT TEAC FOR A SERVICE REFERRAL. DO NOT USE THE PRODUCT UNTIL IT HAS BEEN REPAIRED.

### For U.S.A.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the equipment and/or the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### CAUTION

Changes or modifications to this equipments not expressly approved by TEAC CORPORATION for compliance will void the user's warranty.

## Contents

**Thank you for choosing Esoteric. Read this manual carefully to get the best performance from this unit.**

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## Before Use

### Read this before operation

- As the unit may become warm during operation, always leave sufficient space around the unit for ventilation.
- The voltage supplied to the unit should match the voltage as printed on the rear panel. If you are in any doubt regarding this matter, consult an electrician.
- Choose the installation location of your unit carefully. Avoid placing it in direct sunlight or close to a source of heat. Also avoid locations subject to vibrations and excessive dust, heat, cold or moisture.
- Do not place the unit on the amplifier/receiver.
- Do not open the cabinet as this might result in damage to the circuitry or electrical shock. If a foreign object should get into the unit, contact your dealer or service company.
- When removing the power plug from the wall outlet, always pull directly on the plug, never yank the cord.
- Do not attempt to clean the unit with chemical solvents as this might damage the finish. Use a clean, dry or slightly damp cloth.
- Keep this manual in a safe place for future reference.

### CAUTION

Ensure this product is not exposed to dripping or splashing and that no object filled with liquids, such as vases, is placed on the product.

Do not install this equipment in a confined space such as a book case or similar unit. Allow adequate air circulation around this product.

# Connecting Antennas

## CAUTION:

- Switch off the power to all equipment before making connections.
- Read the instructions of each component you intend to use with this unit.
- Be sure to insert each plug securely. To prevent hum and noise, avoid bundling the signal interconnection cables together with the AC power cord or speaker cables.

## AM Indoor Loop Antenna

The high-performance AM loop antenna provided with this unit is sufficient for good reception in most areas.

Snap the supplied loop antenna into the hinge on the rear of the unit, and connect the wires running out the loop antenna to the AM terminals, as shown.

When you actually try listening AM programs later, you may want to turn the loop antenna on the hinge for the best possible reception.

## AM Outdoor Antenna

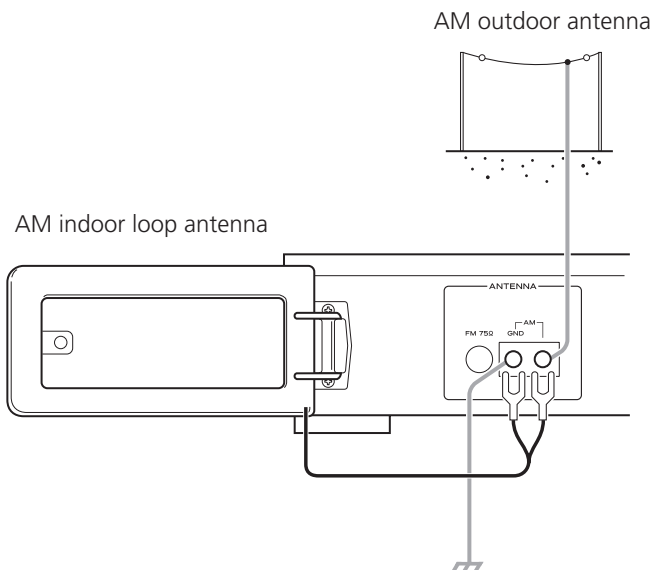
If the AM loop antenna provided does not deliver sufficient reception (often due to being too far from the transmitter or in a concrete building, etc.), it may be necessary to use an outdoor AM antenna.

Use either a high quality commercial AM antenna or, if not available, an insulated wire more than 5 m (15 feet) long, strip one end, and connect this to the terminal as shown.

The antenna wire should be strung outdoors or indoors near a window. For better reception, connect the GND terminal to a reliable ground.

## Note:

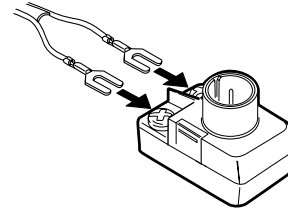
Even when using an outdoor AM antenna, do not disconnect the AM loop antenna.



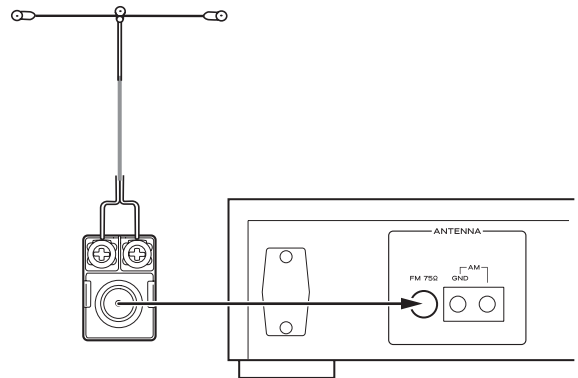
## FM Indoor Antenna

In an area with strong FM signals, the T-type FM antenna provided with this unit is sufficient.

Extend the antenna into a "T" shape and connect the two wires at the base of the "T" to the provided matching transformer, as shown.



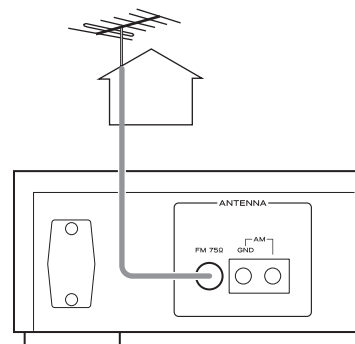
After completing connection, plug the transformer into the "FM 75Ω" socket. Extend the top of the "T" and tune the tuner to your favorite station (see page 8). Adjust the antenna in a suitable location like a window frame or wall until the reception is best and then affix the antenna in that position using thumb tacks, push pins or any other suitable means.



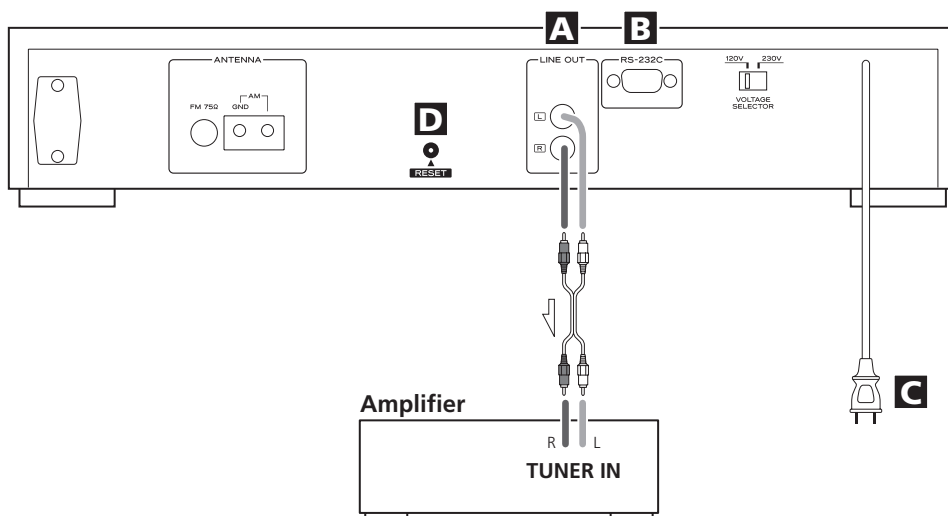
## FM Outdoor Antenna

In an area where FM signals are weak, it will be necessary to use an 75-ohm unbalanced-type outdoor FM antenna. Generally, a 3-element antenna will be sufficient; if you live in an area where the FM signals are particularly weak, it may be necessary to use one with 5 or more elements.

- If you are using a 300-ohm antenna, connect it to the tuner via the supplied matching transformer. (No need for it in connecting a 75-ohm antenna.)
- Disconnect the FM indoor antenna when using an outdoor antenna.



# Connections



## CAUTION:

- Switch off the power to all equipment before making connections.
- Read the instructions of each component you intend to use with this unit.
- Be sure to insert each plug securely. To prevent hum and noise, avoid bundling the signal interconnection cables together with the AC power cord or speaker cables.

## A LINE OUT jack

Analog 2-channel audio signal is output from this jack. Connect this jack to the TUNER input jack of the amplifier with an RCA cable.

Make sure to connect :

- white plug → white jack (L: left channel)
- red plug → red jack (R: right channel)

## B RS-232C connector

See page 14 for details.

## C Power cord (AC)

Be sure to connect the power cord to an AC outlet which supplies the correct voltage.

Hold the power plug when plugging or unplugging the power cord. Never pull or yank on the power cord.

## D RESET switch

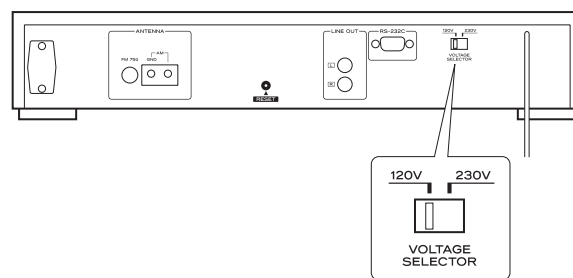
In the following cases, function buttons may not work properly.

- When the system is damaged by electrical shock.
- When the power is irregular or has electrical noises.

In these cases, press the RESET switch once or twice with a pencil or a ball-point pen lightly.

All the settings kept in memory (such as preset stations) will be erased.

## Voltage Conversion

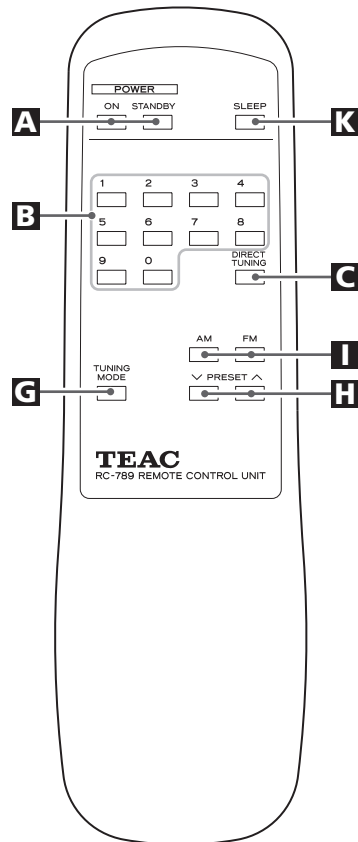
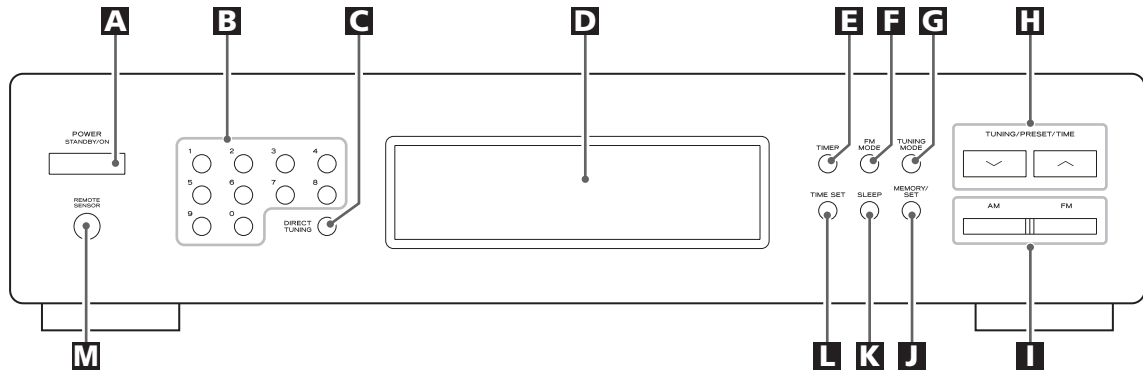


Be sure to remove the power cord from the AC outlet before repositioning the voltage converter switch.

1. Locate the voltage selector on the rear panel.
2. Using a flat-bladed screwdriver, set to the appropriate 230V or 120V position according to your area.

**IN NORTH AMERICA USE ONLY ON 120 V SUPPLY.**

# Unit Functions



**Note:**

To simplify explanations, instructions in this manual refer to the names of the buttons and controls on the front panel only. Associated controls on the remote control will also operate similarly.

## **A** POWER (STANDBY/ON)

Press this switch to turn the unit on or standby (clock mode).

When using the remote control unit, press the ON button to turn the unit on, and press the STANDBY button to turn it standby.

The equipment draws a nominal amount of power from the AC outlet even with its POWER switch in the OFF position.

## **B** Numeric buttons

These are used either to directly input frequency numbers or to select preset stations.

## **C** DIRECT TUNING

Press this button and you can use the numeric buttons to directly input frequency numbers.

## **D** Display

## **E** TIMER

Press this button to put the tuner under the control of a built-in timer in terms of automatically switching on power to the unit at a predetermined time and turning it off after a predetermined time period.

## **F** FM MODE

This button toggles Stereo and Mono modes.

## **G** TUNING MODE

Press this button to toggle Preset and Tuning modes.

## **H** TUNING/PRESET/TIME

These buttons are used to: 1) search out stations; 2) let the unit tune in to a preset station; and 3) set a built-in clock and timer.

## **I** AM/FM

Use this button to select either of the frequency bands.

## **J** MEMORY/SET

This button is used either to store stations in presets or to set a built-in clock and timer.

## **K** SLEEP

This button lets you set a time at the end of which this unit automatically switches itself off.

## **L** TIME SET

Press this button and the MEMORY/SET button is available to set a built-in clock and timer.

## **M** Remote control sensor

Receives signals from the remote control unit. Point the remote control unit at this sensor when operating the remote control unit.

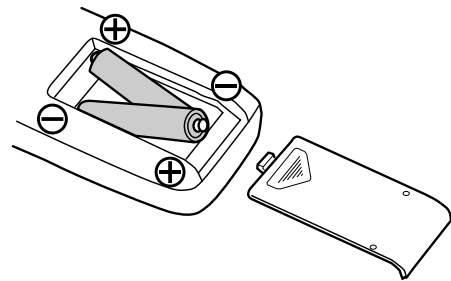
# Remote Control Unit

The provided Remote Control Unit allows the unit to be operated from a distance.

When operating the remote control unit, point it towards the remote sensor on the front panel of the unit.

- Even if the remote control unit is operated within the effective range (5m), remote control operation may be impossible if there are any obstacles between the unit and the remote control.
- If the remote control unit is operated near other products which generate infrared rays, or if other remote control devices using infrared rays are used near the unit, it may operate incorrectly. Conversely, the other products may operate incorrectly.

## Battery Installation



1. Remove the battery compartment cover.
2. Insert two "AA" (R6 or SUM-3) dry batteries. Make sure that the batteries are inserted with their positive "⊕" and negative "⊖" poles positioned correctly.
3. Close the cover.

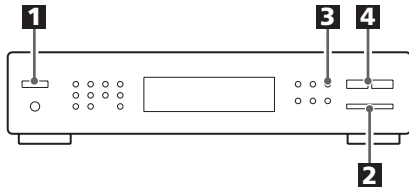
## Battery Replacement

If the distance required between the remote control unit and main unit decreases, the batteries are exhausted. In this case replace the batteries with new ones.

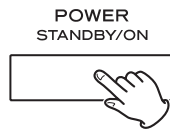
## Precautions concerning batteries

- Be sure to insert the batteries with correct positive "⊕" and negative "⊖" polarities.
- Use batteries of the same type. Never use different types of batteries together.
- Rechargeable and non-rechargeable batteries can be used. Refer to the precautions on their labels.
- When the remote control unit is not to be used for a long time (more than a month), remove the batteries from the remote control unit to prevent them from leaking. If they leak, wipe away the liquid inside the battery compartment and replace the batteries with new ones.
- Do not heat or disassemble batteries and never dispose of old batteries by throwing them in a fire.

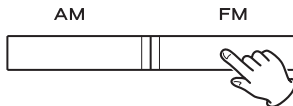
# Radio Reception



- 1 Press the POWER switch (or ON button of the remote control unit) to turn the unit on.**



- 2 Select AM or FM by pressing the corresponding button.**

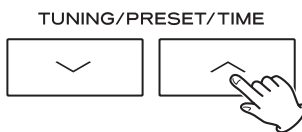


- 3 If the PRESET indicator is lit, press the TUNING MODE button to select the manual tuning mode.**

The PRESET indicator disappears from the display.  
This button is used to change the tuning mode.



- 4 Select the station you want to listen to (auto selection).**



Hold down the TUNING button for 0.5 to 2 seconds.  
When a station is found, the tuning process will stop automatically.

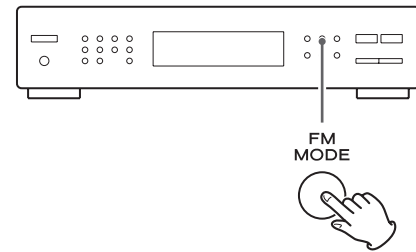
If you want to stop the tuning process, press the TUNING button.

### Selecting stations which cannot be tuned automatically (manual selection)

Hold down (or repeatedly press) the TUNING button and release it when the station you want to listen to is found.  
When the TUNING button is pressed momentarily (0.5 second or less), the frequency changes by a fixed step.

- "TUNED" is displayed when a broadcast is correctly tuned in.

## FM MODE Button



Pressing this button alternates between Stereo mode and Mono mode.

### Stereo

FM stereo broadcasts are received in stereo.

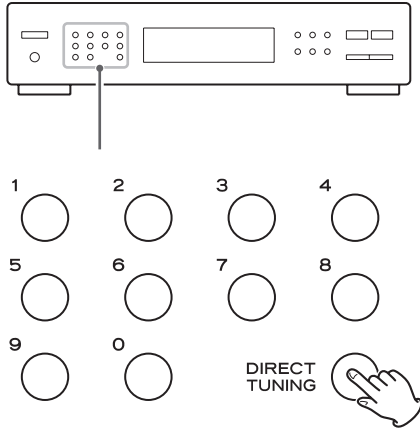
The "STEREO" indicator lights on the display when an FM stereo broadcast is tuned in.

- If the sound is distorted and the "STEREO" indicator light flashes, the signal is not strong enough for good stereo reception. In this case, change to MONO mode.

### Mono

To compensate for weak FM stereo reception, select this mode. Reception will now be forced monaural, reducing unwanted noise.

## Direct Tuning



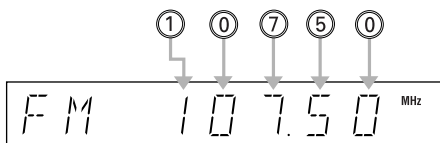
Using this method, the required frequency can be input directly.

### 1 Press the DIRECT TUNING button.

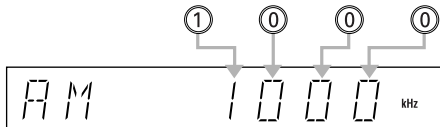
The frequency numbers that were displayed should go out. They will come up again if you don't go on to the next step within 5 seconds. If this happens, press the DIRECT TUNING button again.

### 2 Input the frequency of the broadcast you want to hear with the numeric keys.

**Example: FM 107.5 MHz**



**Example: AM 1000 kHz**



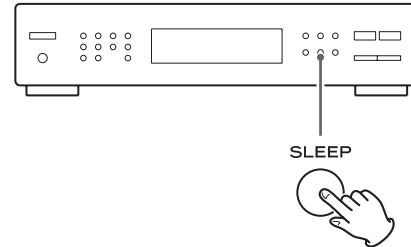
- To directly tune to FM frequencies, you need to input two digits after the decimal point.
- Either in FM or AM mode, if the number you enter in the rightmost column is wrong and all the preceding numbers are correct, the tuner tunes to the nearest frequency available.

## Sleep Timer

The power can be switched off after a specified amount of time.

Press the SLEEP button repeatedly until desired time appears on the display.

The sleep time can be changed in steps of 10 minutes.



### SLEEP 90 (80, 70...or 10)

The SLEEP indicator lights, and the power will be switched off 90 (80, 70 ... or 10) minutes later.

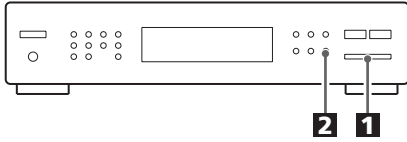
### Normal display:

The sleep timer is off.

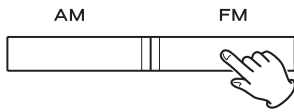
- When you set the sleep timer, the display is dimmed automatically.
- If you want to check the remaining time, press the SLEEP button once. The remaining time (REST) will be displayed for 3 seconds, and then return to the normal display.

You can store FM and AM stations from Channel 1 to 30 respectively.

## Automatic Memory Presetting



**1** Select AM or FM by pressing the corresponding button.

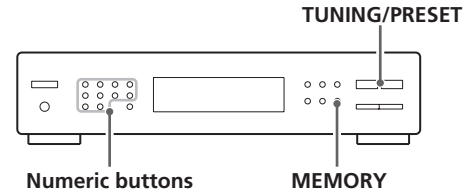


**2** Hold down the MEMORY button and release it when "AUTOSAVE" briefly appears on the display.



Up to 30 of the best received stations in your area will be stored automatically.

## Manual Memory Presetting

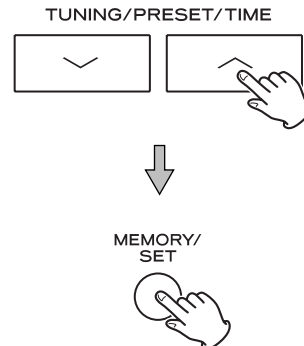


**1** Tune in a station you want to listen to (see steps **1** to **4** of page 8 or "Direct Tuning" on page 9).

**2** Press the MEMORY button.



**3** While the "MEMORY" indicator is blinking, select a preset channel to store the station using the TUNING/PRESET buttons, and then press the MEMORY button.



The display briefly shows "SAVE", and the station is stored in memory.

You can also use the numeric buttons to select a preset channel.

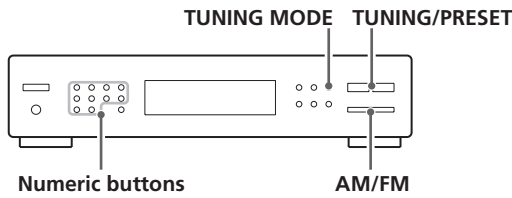
For instance, to select preset number 25, press "2" and "5". To select numbers less than 10, press "0" and then the number. As an example, to select number 5, press "0" and "5". (Optionally, you may press just the number "5" and then wait a few seconds.)

When using the numeric buttons, the station is stored automatically without pressing the MEMORY button.

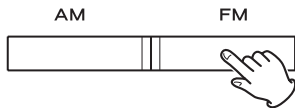
**To store more stations, repeat steps 1 to 3.**

- If you store a new station to a channel, the station previously stored in the channel will be overwritten.

## How to select preset stations



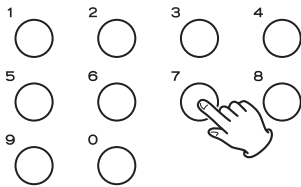
**1** Select AM or FM by pressing the corresponding button.



**2** If "PRESET" indicator is not lit, press the TUNING MODE button to select the preset tuning mode.



**3** Select a preset channel using the numeric buttons or the TUNING/PRESET buttons.



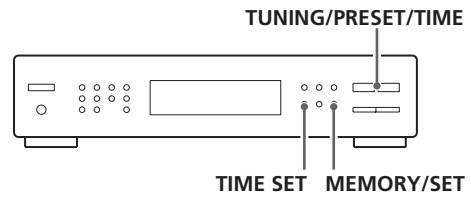
For instance, to select preset number 25, press "2" and "5". To select numbers less than 10, press "0" and then the number. As an example, to select number 5, press "0" and "5". (Optionally, you may press just the number "5" and then wait a few seconds.)

When using the TUNING/PRESET button, press it repeatedly until the desired preset station is found.

### Memory Backup

If the unit is disconnected from the power supply for more than one hour, clock and timer settings kept in memory will be erased.

Preset stations persist on a semipermanent basis even when the power plug is disconnected.



**1** Press the TIME SET button once.



"TIME SET" blinks on the display.

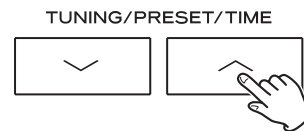
- You can adjust the clock even when the unit is in the standby mode.

**2** Within 5 seconds, press the MEMORY/SET button.



The "hour" value blinks.

**3** Press the TUNING/PRESET/TIME buttons to set the current hour.

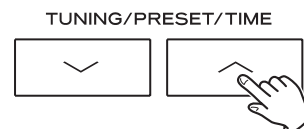


**4** Press the MEMORY/SET button.



The "minute" value blinks.

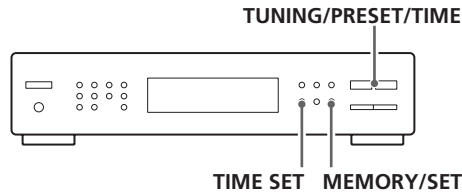
**5** Press the TUNING/PRESET/TIME buttons to set the current minute.



**6** Press the MEMORY/SET button.



The clock starts from 00 second.



- The unit can be programmed to turn on and off (standby) at a specified time every day.
- Adjust the clock before setting the timer (see page 11).

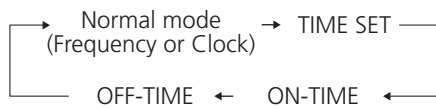
## Setting the start time

**1** Press the **TIME SET** button twice.



"ON-TIME" blinks on the display.

- Each time the TIME SET button is pressed, the mode is changed as follows:

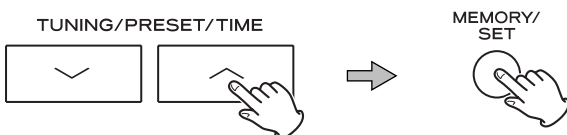


**2** Within 5 seconds, press the **MEMORY/SET** button.



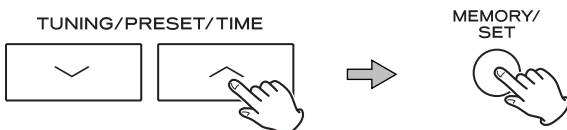
The "hour" value blinks.

**3** Press the **TUNING/PRESET/TIME** buttons to set the start time (hour), and then press the **MEMORY/SET** button.



The "minute" value blinks.

**4** Press the **TUNING/PRESET/TIME** buttons to set the start time (minutes), and then press the **MEMORY/SET** button.



The start time is stored in memory, and the display returns to normal.

## Setting the stop time

**1** Press the **TIME SET** button three times.



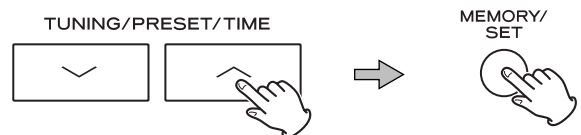
"OFF-TIME" blinks on the display.

**2** Within 5 seconds, press the **MEMORY/SET** button.



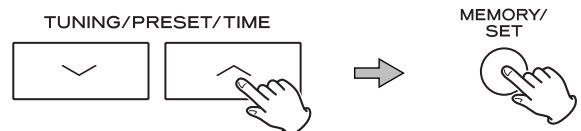
The "hour" value blinks.

**3** Press the **TUNING/PRESET/TIME** buttons to set the stop time (hour), and then press the **MEMORY/SET** button.

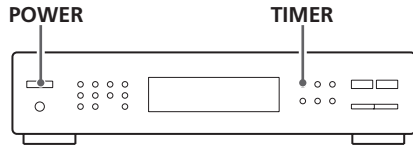


The "minute" value blinks.

**4** Press the **TUNING/PRESET/TIME** buttons to set the stop time (minutes), and then press the **MEMORY/SET** button.



The stop time is stored in memory, and the display returns to normal.



## To turn on the timer

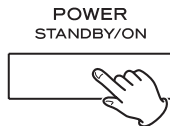
- 1 After setting the start time and stop time, press the **TIMER** button to turn the timer on.



The **TIMER** indicator appears on the display.

- 2 Tune in a station.

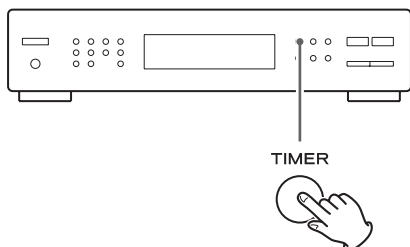
- 3 Press the **POWER** switch to turn the unit off (standby).



**Don't forget to turn the unit off (standby), or the timer won't work.**

The unit will turn on with the station you selected last time.

- When you don't use the timer, press the **TIMER** button to turn it off. The **TIMER** indicator disappears from the display. Press the **TIMER** button again to turn it on.



## To check the timer setting

To check the current timer settings, press the **TIME SET** button twice, then press the **MEMORY/SET** button. If you are happy with the current **ON-TIME** setting, press the **TIME SET** button once, followed by the **MEMORY/SET** button, to check the **OFF-TIME** setting.

If you experience any problems with the unit, please take a moment to look through this chart and see if you can solve the problem yourself before you call your dealer or a TEAC service center.

### No power

- ➔ Check the connection to the AC power supply. Check and make sure the AC source is not a switched outlet and that, if it is, the switch is turned on. Make sure there is power to the AC outlet by plugging another item such as a lamp or fan.

### No sound

- ➔ Check the connection to the amplifier.
- ➔ Check the operation of the amplifier.

### Cannot listen to any station, or signal is too weak.

- ➔ Make sure the antenna is properly connected.
- ➔ Tune in the station properly.
- ➔ If a TV is near the unit, turn it off.
- ➔ Install the antenna again after relocating it to a better reception position.
- ➔ An external antenna may be required.

### Sound is noisy.

- ➔ Place the antenna as far away from a TV or a CD player as possible.
- ➔ If a TV or a CD player is near the unit, turn it off.

### Though the broadcast is stereo, it sounds monaural.

- ➔ Press the **FM MODE** button.

### Remote control doesn't work.

- ➔ Press the **POWER** switch (or the **ON** button of the remote control unit) to turn the unit on.
- ➔ If the batteries are dead, change the batteries.
- ➔ Use remote control unit within the range (5m/15ft) and point at the front panel.
- ➔ Clear obstacles between the remote control unit and the main unit.
- ➔ If a strong light is near the unit, turn it off.

**If normal operation is not restored, unplug the power cord from the outlet and plug it again.**

## Maintenance

If the surface of the unit gets dirty, wipe with a soft cloth or use diluted neutral cleaning liquid. Be sure to remove any fluid completely. Do not use thinner, benzine or alcohol as they may damage the surface of the unit.

## Hardware Specification

### Protocol

Baud rate: 38400 bps  
 Data Bit: 8 Bits  
 Stop Bit: 1 Bits  
 Parity: None

### Connector & Pin Defined

T-R680RS Connector: 9-pin female DB  
 PC Connector: 9-pin male DB

PC		T-R680RS
Pin 2 RxD	——	TxD Pin 2
Pin 3 TxD	——	RxD Pin 3
Pin 5 Gnd	——	Gnd Pin 5

## Software Specification

### Rx Format

- Flow Control: No
- Rx Format:
  - IR System Code 1 + IR System Code 2 + Key Code + CheckSum
  - Checksum = IR System Code 1 + IR System Code 2 + Key Code
- Each of tx format code needs the 100ms of the partition

Function	Code	Remark
Power	"\x81\x73\x07\xfb"	Power on/off toggle
Power On	"\x81\x73\x4b\x3f"	
Power Off	"\x81\x73\x4c\x40"	
AM Band	"\x81\x73\x4d\x41"	
FM Band	"\x81\x73\x4e\x42"	
FM mode	"\x81\x73\x61\x55"	Stereo/Mono toggle
Tuning Up	"\x81\x73\x0c\x00"	
Tuning Down	"\x81\x73\x0d\x01"	
Tuning Mode	"\x81\x73\x4a\x3e"	Preset/Tuning toggle
Direct Tuning	"\x81\x73\x47\x3b"	
Tuner Preset 1	"\x81\x73\x17\x0b"	
Tuner Preset 2	"\x81\x73\x18\x0c"	
Tuner Preset 3	"\x81\x73\x19\x0d"	
Tuner Preset 4	"\x81\x73\x1a\x0e"	
Tuner Preset 5	"\x81\x73\x1b\x0f"	
Tuner Preset 6	"\x81\x73\x1c\x10"	
Tuner Preset 7	"\x81\x73\x1d\x11"	
Tuner Preset 8	"\x81\x73\x1e\x12"	
Tuner Preset 9	"\x81\x73\x1f\x13"	
Tuner Preset 0	"\x81\x73\x40\x34"	
Memory	"\x81\x73\x63\x57"	
Tuner Autosave	"\x81\x73\xcd\x11"	
Time Mode	"\x81\x73\x62\x56"	
Timer	"\x81\x73\x60\x54"	
Sleep	"\x81\x73\x41\x35"	
Echo On	"\x81\x73\xce\x12"	Enable T-R680RS sends out the display message(default)
Echo Off	"\x81\x73\xcf\x13"	Disable T-R680RS sends out the display message
DeviceID	"\x81\x73\xff\xf3"	Echo "\x81\x73\xff\xf3"

## Tx Format

### T-R680RS to PC Protocol

Flow Control: No  
 Data transferring through T-R680RS to PC are always with the following "Package" structure.

### Protocol: Head + Tx Type + Icon Bit Map + Main Display Data + Channel Display Data + Checksum

Head(1 byte): 0xcd  
 Tx Type(1 byte): 0, 40, 41  
 Icon Bit Map( 4 byte): HEX code  
 Main Display Data( 8 byte): ASCII data  
 Channel Display Data(2 byte): ASCII data  
 Checksum(1 byte): Head + Tx Type + Icon Bit Map + Main Display Data + Channel Display Data

### Basic Tx commands are categorized as below:

- Tx Type 40
  - Code: 0xcd + 0x28 + 0x00 + 0xf5
  - Description: T-R680RS send out Power Off Command
- Tx Type 41
  - Code: 0xcd + 0x29 + 0x00 + 0xf6
  - Description: T-R680RS send out Power On Command
- Tx Type 0
  - Code: Head + Tx Type + Icon Bit Map + Display String + Channel Data + Checksum
  - Description: T-R680RS send Display Windows String Command

Explain the meaning of delivering the data format below

### ICON BIT MAP

Show the ICON of the main display

#### ICON BIT MAP 0

BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
*	*	*	*	*	*	*	*

#### ICON BIT MAP 1

BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
TIME MARK	AUTO	KHz	Frequency dot	MHz		STEREO	TUNED

#### ICON BIT MAP 2

BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
*	*	*	*	*	*	TIMER	SLEEP

#### ICON BIT MAP 3

BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
*	*	*	*	PRESET	PRESET CH.	*	MEMORY

\*: not used

### MAIN DISPLAY DATA :

Show main message, for example

FM 103.30

AM 1710

SLEEP 90

### CHANNEL DISPLAY DATA :

Show the message of PRESET CHANNEL, for example

12

22

...

## Software Programming Procedure

1. To start-up T-R680RS, the control system should be send "Power On" command (start working command), then the T-R680RS is Under-control.
2. When T-R680RS press on the Power Key to Power Off, T-R680RS will send out the Code: 0x81 + 0x73 + 0x4c + 0x40
3. When T-R680RS press on the Power Key to Power On, T-R680RS will send out the Code: 0x81 + 0x73 + 0x4b + 0x3f
4. When T-R680RS Display Window is changed, T-R680RS will send out the Code: Head + Tx Type + Main Display Dat + Channel Display Data + Checksum

## Specifications

### FM Tuner Section (Without notes 98 MHz, 65 dBf)

Tuning Range	87.5 MHz - 108.0 MHz (100 kHz steps)
Usable Sensitivity (IHF)	Mono: 11.2 dBf
50 dB Quieting Sensitivity	Mono: 15 dBf
	Stereo: 20 dBf
Total Harmonic Distortion (1 kHz)	Mono: 0.4%
	Stereo: 0.5%
Frequency Response	30 Hz - 15 kHz, +1/-1.5 dB
Stereo Separation (1 kHz)	40 dB
Signal-to-Noise Ratio	Mono: 72 dB
	Stereo: 70 dB

### AM Tuner Section

Tuning Range	530 kHz - 1,720 kHz (10 kHz steps)
Usable Sensitivity	55 dB/m
Total Harmonic Distortion	0.8% at 85 dB/m
Signal-to-Noise Ratio	45 dB at 85 dB/m

### General

Power requirements	120/230 V AC, 50-60 Hz
Power Consumption	8 W
Dimensions (W x H x D)	435 x 102 x 270 mm
	(17 1/8" x 4" x 10 5/8")
Weight (net)	4.0 kg (8 13/16 lbs)

### Standard Accessories:

- AM Loop Antenna x 1
- FM T-type Antenna x 1
- Matching Transformer x 1
- Remote Control Unit (RC-789) x 1

- Design and specifications are subject to change without notice.
- Illustrations may differ slightly from production models.

# TEAC

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This appliance has a serial number located on the rear panel. Please record the model number and serial number and retain them for your records.

Model number

Serial number

1105 · MA-1037A