



T-4700

Quartz Synthesized FM Stereo/AM Tuner

Instruction Manual

• *Congratulations on your purchase of the ONKYO T-4700 Tuner.* • *Please read this manual thoroughly before making connections and turning power on.* • *Following the instructions in this manual will enable you to obtain optimum performance and listening enjoyment from your new T-4700.* • *Please retain this manual for future reference.*

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Features

• **MOS-FET Varactor Used in Front End**

One major reason for the T-4700's excellent sensitivity and tuning precision is the MOS-FET varactor used in the front end. This unwillingness to compromise on quality gives the T-4700 the sharp, precise reception you expect from an Onkyo tuner.

• **Computer Controlled APR (Automatic Precision Reception) system**

Onkyo's exclusive APR system lets every FM broadcast sound its best. It constantly monitors the signal and selects the optimum settings for four reception modes: auto stereo/mono, hi-blend on/off, IF bandwidth wide/narrow and RF mode LOCAL/DX. Front panel indicators show all APR settings, which can be overridden manually if desired.

• **40-Station FM/AM Random Preset Tuning**

The T-4700 can store up to 40 AM and FM stations in memory in any combination. Avid FM fans can devote most or all of the memory settings to FM stations. If there are few FM stations in the area, simply increase the proportion of AM stations.

• **Automatic Tuning**

• **Eight-Segment Signal Strength Indicator**

• **Dual FM Antenna Inputs**

CAUTION:

"WARNING"

"TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK DO NOT



**RISK OF ELECTRIC SHOCK
DO NOT OPEN**



- 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 safeguards

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 use 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, and the like.

DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

- Sur les modèles dont la fiche est polarisée.

ATTENTION: POUR PRÉVENIR LES CHOCS ÉLECTRIQUES NE PAS UTILISER CETTE FICHE POLARISÉE AVEC UN PROLONGATEUR. UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ÊTRE INSÉRÉES À FOND SANS EN LAISSER AUCUNE PARTIE À DÉCOUVERT.

6. **Carts and Stands** – The appliance should be used only with a cart or stand that is recommended by the manufacturer.

- 6A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and combination to overturn.

PORTABLE CART WARNING



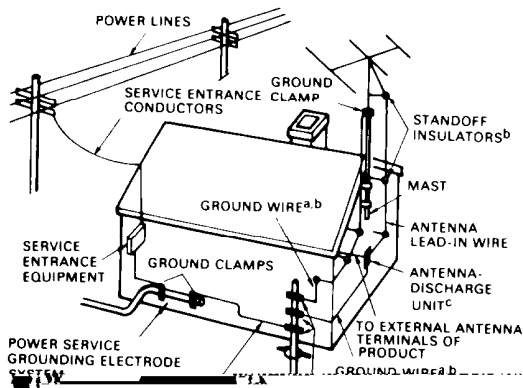
S3125A

7. **Wall or Ceiling Mounting** – The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.

or air through the ventilation openings.

9. **Heat** – The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) 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. **Grounding and Polarization** – The precautions that should be taken so that the grounding or polarization means of an appliance is not defeated.
12. **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.
13. **Cleaning** – The appliance should be cleaned only as recommended by the manufacturer.
14. **Power Lines** – An outdoor antenna should be located away from power lines.
15. **Outdoor Antenna Grounding** – If an outside antenna is connected to the receiver, 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 the antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure 73.1.

**FIGURE 73.1:
EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE INSTRUCTIONS CONTAINED IN ARTICLE 810 – "RADIO AND TELEVISION EQUIPMENT"**



- ^a Use No. 10 AWG (5.3 mm²) copper, No. 8 AWG (8.4 mm²) aluminum, No. 17 AWG (1.0 mm²) copper-clad steel or bronze wire, or larger, as a ground wire.
- ^b Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4–6 feet (1.22–1.82 m) apart.
- ^c Mount antenna discharge unit as close as possible to where lead-in enters house.
- ^d Use jumper wire not smaller than No. 6 AWG (13.3 mm²) copper, or the equivalent, when a separate antenna-grounding electrode is used. See NEC Section 810-21 (j).

16. **Nonuse Periods** – The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
17. **Object and Liquid Entry** – Care should be taken so that objects

18. **Damage Requiring Service** – The appliance should be serviced by qualified service personnel when:

E. The appliance has been dropped or the enclosure damaged.

19. **Servicing** – The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

Memory Preservation

This unit does not require memory preservation batteries. A built-in memory power back-up system preserves the contents of the memory during power failures and even when the unit is unplugged. The unit must be plugged in and the Power switch turned on and off once in order to charge the back-up system. Note that since this is not a permanent memory, the Power switch must be turned on and off a few times each month to keep the back-up system operative.

The memory preservation period after power has last been turned off varies depending on climate and placement of the unit. On the average, memory contents are protected over a period of about a month after the last time power has been turned off. This period is shorter when the unit is exposed to a humid climate.

Precautions

1. Warranty Card

The serial number is written on the rear panel of this unit. Copy the serial number and model number onto your warranty card and keep it in a safe place.

2. Care

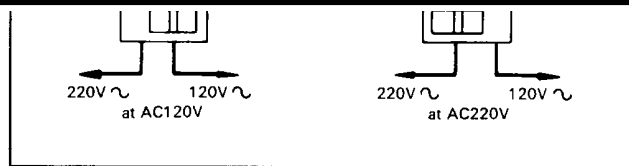
From time to time you should wipe off the front and rear panels and the cabinet with a soft cloth. For heavier dirt, dampen a soft cloth in a weak solution of mild detergent and water, wring it out dry, and wipe off the dirt. Following this, dry immediately with a clean cloth. Do not use rough material, thinners, alcohol or other chemical solvents or cloths since these could damage the finish or remove the panel lettering.

3. Power WARNING

BEFORE CONNECTING THE UNIT TO AN AC OUTLET, READ THE FOLLOWING SECTION CAREFULLY.

• Voltage Selector (Rear Panel)

Worldwide models are equipped with a voltage selector to conform with local power supplies. Be sure to set this switch to match the voltage of the power supply in your area before plugging in the unit. Voltage is changed by sliding the groove in the switch with a screwdriver to the right or left. Confirm that the switch has been moved all the way to the right or left before

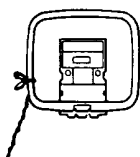


• De-Emphasis Switch (Rear Panel)

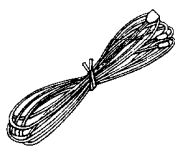
Worldwide models are equipped with a switch that controls de-emphasis (50 μsec - 75 μsec). Be sure to set this switch to match the de-emphasis in your area.

Before using this unit

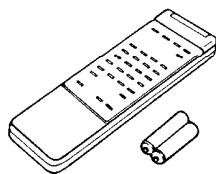
1. Supplied Accessories



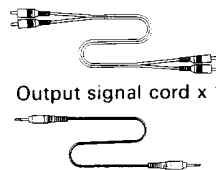
AM loop antenna x 1



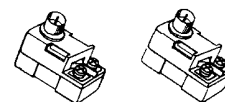
T-shaped FM antenna x 1



Remote control transmitter RC-165T x 1
Batteries x 2

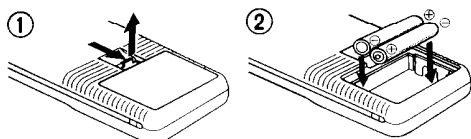


Output signal cord x 1



RI remote control cable x 1 75/300 ohm antenna adapter x 2

2. Transmitter Battery Insertion



- If the remote control transmitter does not operate even though front panel controls function normally, the batteries should be replaced. Use only batteries listed in the following chart.

Type	Voltage	Size
Manganese		AA

Precautions when using batteries

- The remote control transmitter is powered by two batteries. Before using this unit for the first time, insert the two batteries (included) as shown in the diagram.
- Average battery life is about one year. This period may be shorter depending on the frequency of use and environment (temperature and humidity) in which the remote control transmitter is used.

2. When inserting the batteries, be sure the (+) and (-) ends are properly aligned.
3. Do not use nickel-cadmium (rechargeable) batteries.
4. Do not use one specified (manganese) battery and one alkaline Battery at the same time.
5. Replace both batteries at once; do not use one old and one new battery together.

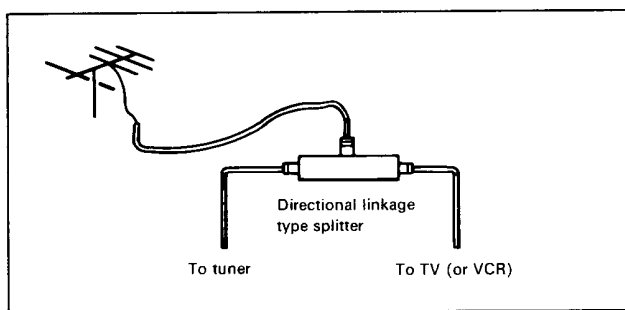
System connections

FM Antennas Connections

Depending on the strength and quality of FM signals in your area, the accessory T-shaped antenna may give satisfactory reception or you may need an external FM antenna. To use the T-shaped antenna, connect it to the 300 ohm (screw) side of the accessory 75/300 ohm antenna adapter, spread the antenna on a wall, preferably outside or on the ceiling, and try several positions to determine which gives the best reception. If reception with the T-shaped antenna is unsatisfactory, install a multi-element external FM antenna. Two different antenna systems can be connected to this unit. Consult your Onkyo Service Center about the right type for your area.

NOTE:

1. Do not use the same antenna for both FM and TV (or VCR) reception since the FM and TV (or VCR) signals can interfere with each other. If you must use a common FM/TV (or VCR) antenna, use a directional linkage type splitter.
2. Follow the directions on page 4, to connect an antenna adapter to a 75 ohm cable.



AM Antenna Connections

An AM loop antenna is included in the installation instructions bag. Take out the connection line and connect it to the AM antenna terminals. This loop antenna can be used placed on top of the tuner or attached to a wall or other surface. Try several positions to determine which gives the best reception. Be sure the antenna is not near a speaker, power cord, television set, VCR, or motorized appliances. When using an external AM antenna, do not remove the loop antenna; connect both antennas to the AM antenna terminals.

RI Remote Control Jack (RI : Remote Interactive)

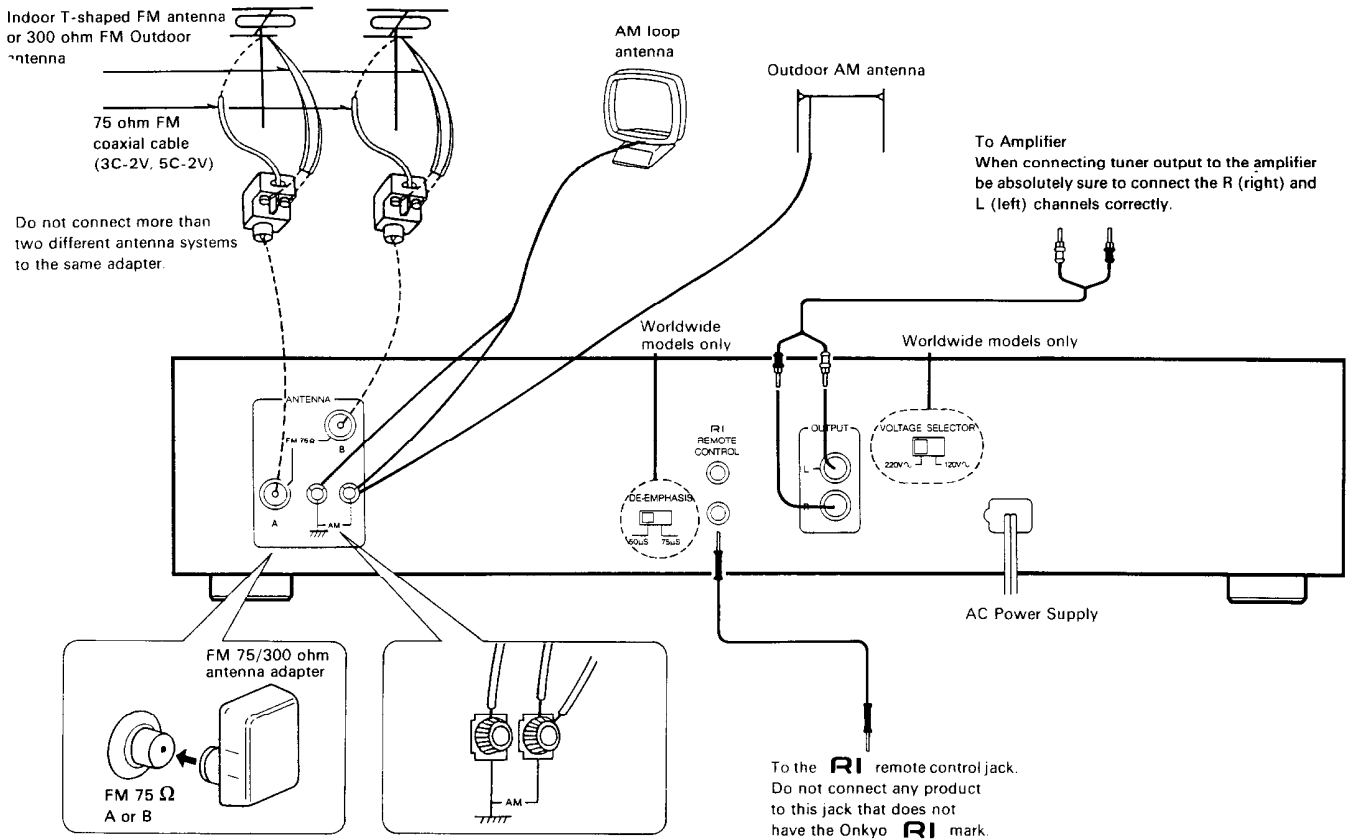
For remote control operation, connect this jack and any Onkyo amplifier bearing the "RI" mark using the remote control cable included with this unit. (Station Up/Down buttons can be controlled via the remote controller delivered with the amplifier.) For more details, see the user's manual for the amplifier.

NOTE:

The RI mark is Onkyo's own mark. Audio equipment with this mark can be controlled through the amplifier with the RI mark, using remote control transmitter. Do not connect any product to this jack that does not have the Onkyo RI mark. Doing so can damage your equipment.

Note to CATV system installer:

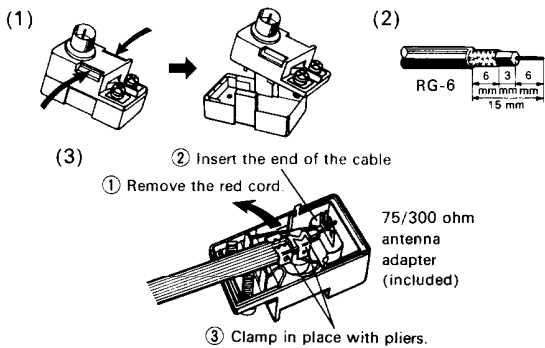
This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding, and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.



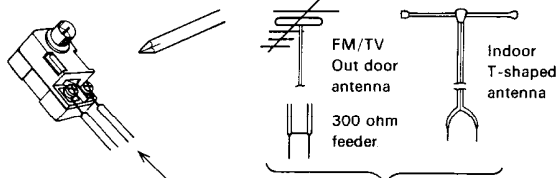
How to connect a 75/300 ohm antenna adapter

■ **Connecting coaxial cable**

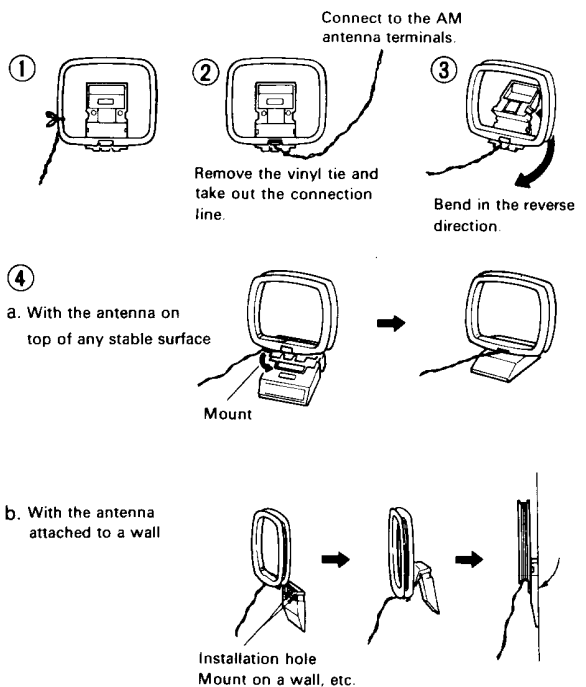
- (1) With your fingernail or a small screwdriver, press the stopper inwards and remove the cover.
- (2) Prepare the coaxial cable as shown below.
- (3) Connect the 75/300 ohm antenna adapter to the coaxial cable.



■ **Connecting T-shaped FM antenna or 300 ohm FM outdoor antenna**



AM loop antenna assembly



Control positions and names

Front panel

For more information about buttons or controls, turn to the page number listed in the [].

Character Memory Button (CHARACTER) [10]

Display Button (DISPLAY) [10]

Tuning Level Selector Button (TUNING LEVEL) [7]

Power Switch (POWER) and Indicator
Depress once to turn power on and once again to turn power off. The indicator above the switch lights when power is on.

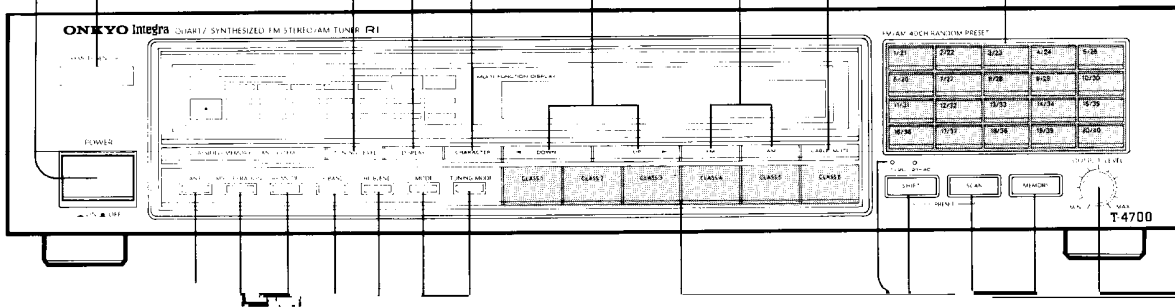
Remote Control Sensor [6]

Tuning Selector/Character Search Buttons [7, 8, 10]
(◀ DOWN, UP ▶)

Band Selector Buttons (FM, AM) [7, 8]

FM Tuning Step/Muting Button [7]
(CABLE/MUTE)

Preset Station Buttons [8, 9, 10]
(FM/AM 40CH RANDOM PRESET)



RF Mode Selector Button (RF MODE) [8]

IF Bandwidth Selector Button (IF BAND) [8]

Hi-Blend Selector Button (HI-BLEND) [8]

(MEMORY) [8, 9]

Preset Scan Button (SCAN) [9]

Shift Button (SHIFT) and Indicators [8]

Classified memory buttons [9]
(CLASS 1 – CLASS 6)

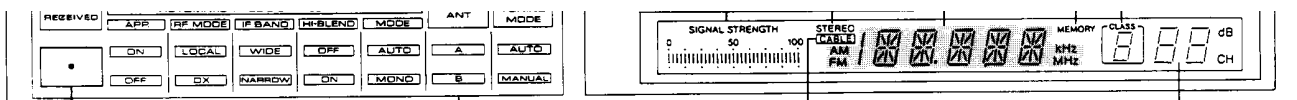
Display and indicators

Tuning Mode Indicators

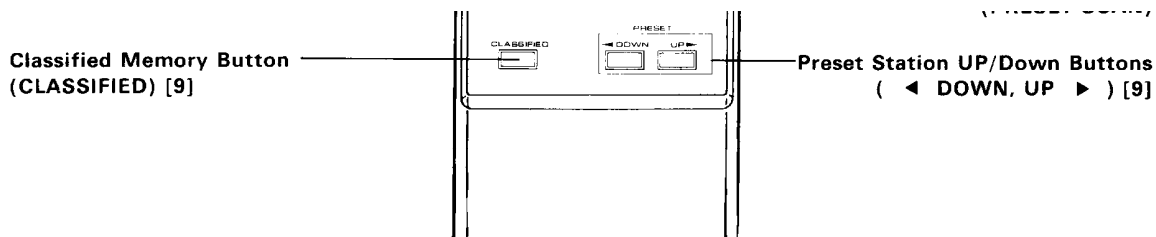
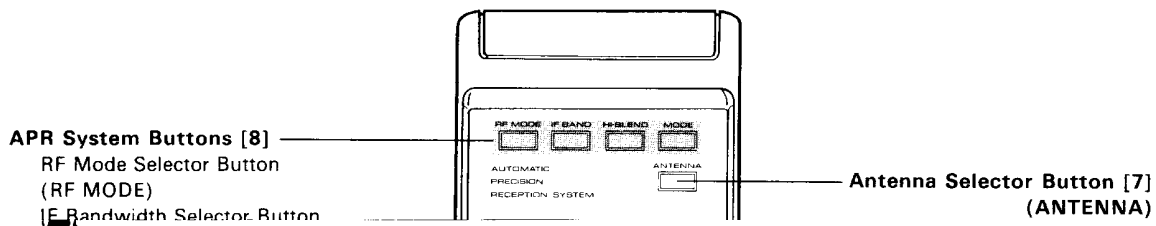
Stereo Indicator

Frequency and Character Display

Memory Indicator

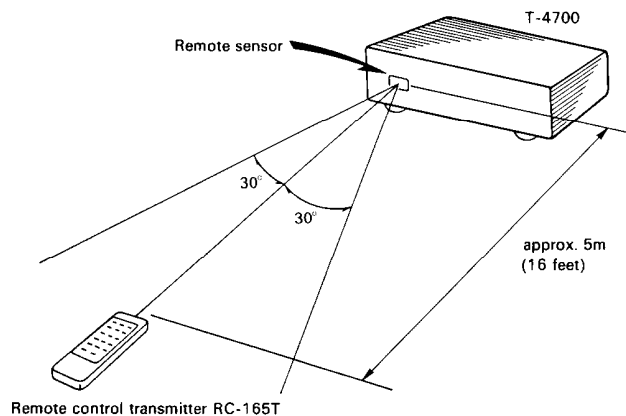


Remote control transmitter (RC-165T)



Using the remote control transmitter

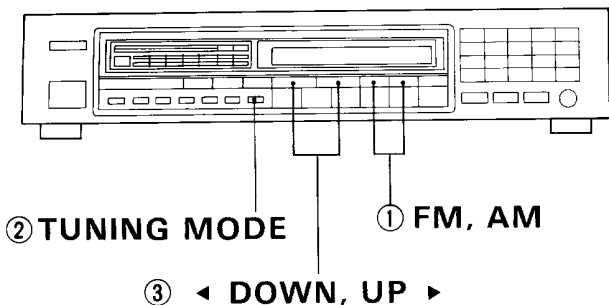
1. Remove the batteries if the remote control transmitter is not going to be used for a long time.
2. The batteries of the remote control transmitter must be replaced periodically.
3. This unit uses infrared rays. Therefore, commands may not be received properly if the front panel of this unit is exposed to bright light. To prevent this from occurring, place this unit so that it is not directly exposed to bright light.
4. If this unit is placed inside an audio rack behind a glass door, the door should not have colored glass or have any decorations on it, since this could shorten the range or prevent commands from being received.
5. Use of other infrared remote control devices in the same room may cause interference.
6. The transmitter operates up to a distance of about five meters (16 feet). The transmitting window must always be pointed at the reception window when a command is sent to the T-4700.
7. If this remote control transmitter does not operate properly, confirm that the batteries are not dead. If the problem persists, contact your Onkyo Service Center.



Common modes of operation

- Before turning the power on, confirm that all connections have been made properly.
- All buttons on this unit (except the power switch) are soft-touch buttons. When the power is turned on, all settings return to the same ones set when power was last turned off.

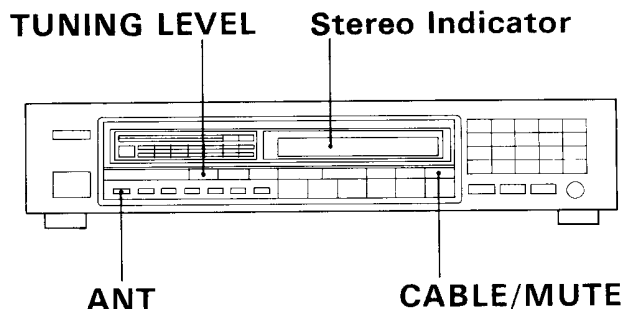
To receive broadcasts



■ Tuning by Auto Mode

- ① Press the FM or AM button.
- ② Press the TUNING MODE button so that the **AUTO** indicator lights.
- ③ Press the UP or DOWN button. The frequency will continue to increase or decrease until a sufficiently strong broadcast is reached. To move on to the next broadcast, press the UP or DOWN button again depending on the direction in which you want to go.
 - To stop scanning during automatic tuning, press the TUNING MODE button. The frequency display will immediately stop at the point at which it was released. Scanning will not stop for broadcasts weak enough to be

For optimal FM broadcast reception



■ Using the TUNING LEVEL button

Each time this button is pressed, the auto tuning level is alternately set to 27 dB or 37 dB. Use the 37 dB setting if there are a lot of strong FM broadcasts in your area, and the 27 dB setting if there are a lot of weak FM broadcasts in your area. The current setting is shown in the multi function display for about two seconds each time this selector is pressed. To receive broadcasts below the level of 27 dB, set the TUNING MODE button to manual and tune. The displayed tuning level unit of 'dB' is an abbreviation for dBf.

■ Stereo Indicator

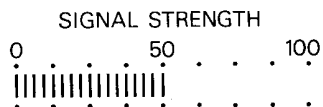
This indicator lights when an FM broadcast is being received.

indicator lights.

- ③ Press the UP or DOWN buttons until the frequency display approaches the frequency of the desired station. Then release the UP or DOWN button and press it again in single steps until the desired frequency is tuned precisely. Pressing once changes the frequency by 50 kHz in the FM band and by 10 (or 9) kHz in the AM band. When the CABLE/MUTE button is ON, the FM frequency changes by steps of 25 kHz.

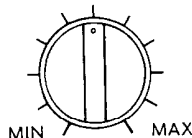
■ Signal Strength Indicator

Optimum tuning points are indicated by the number of lighted lamps.



■ Adjusting volume

OUTPUT LEVEL knob is used to adjust the output level from the output jacks on the rear panel. The standard output level can be obtained when the OUTPUT LEVEL knob is at the intermediate position between MIN and MAX.



■ To achieve more precise tuning of a cable broadcasting station when receiving a cable FM (TV) broadcast

Use the UP or DOWN button to approximately locate the broadcasting frequency in 50 kHz steps, then use the CABLE/MUTE button to turn off FM muting and set the tuning step to 25 kHz. The **CABLE** and TUNING MODE **MANUAL** indicators will light up so that manual tuning of the broadcasting frequency can be performed using the tuning selector button. During 25 kHz tuning step mode, automatic tuning is disabled. The conditions picked up during this Tuning Step Mode can be placed in memory.

NOTE:

When the CABLE mode is cancelled, the tuning frequency returns to 50 kHz step mode.

Examples: 100.125 → 100.100 MHz
 100.175 → 100.150
 100.100 → 100.100

■ Antenna Selection

If antenna have been connected to both the A and B FM antenna connectors on the rear panel, select the one with better sensitivity using the ANT button, or the ANTENNA button on the remote control.

The antenna A/B selection status will be memorized at the Preset Station Buttons.

APR (Automatic Precision Reception) System (FM only)

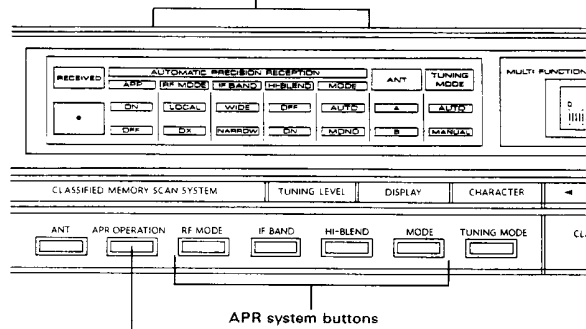
This unit is equipped with Onkyo's unique APR system. During tuning a special computer controlled circuit monitors the quality of the incoming antenna signals, and adjusts various tuner parameters to ensure the best possible sound quality. The APR system in the T-4700 adjusts four reception modes:

1. RF mode DX (distant) or LOCAL — DX mode is for weaker, far away stations, while LOCAL mode is from strong stations nearby.
2. IF bandwidth — APR adjusts the "reception bandwidth" for each station depending on the presence of other stations that may be broadcasting on frequencies close to the desired station. Wide mode is selected for normal reception. Narrow mode is selected when other stations may be at frequencies that are close to the desired station.
3. High Blend on/off - Weak FM stations may exhibit noisy and hissy sound quality in stereo mode. The high blend circuit blends only the highest frequencies into mono, while the rest of the audio range remains in stereo, with substantially reduced noise and hiss.
4. Mode auto/mono — If a station is received with a very weak and noisy signal, the APR will switch to mono mode.

All APR modes can also be preset in memory for each preset station. Note that the APR system functions only during FM reception. RF MODE, IF BAND, HI BLEND and MODE buttons are provided to allow manually overriding these four APR controlled reception modes. If the station is returned, however, the original APR selected modes will be restored.

APR System Indicators

These indicators show the present settings of these four modes selected by the APR System.

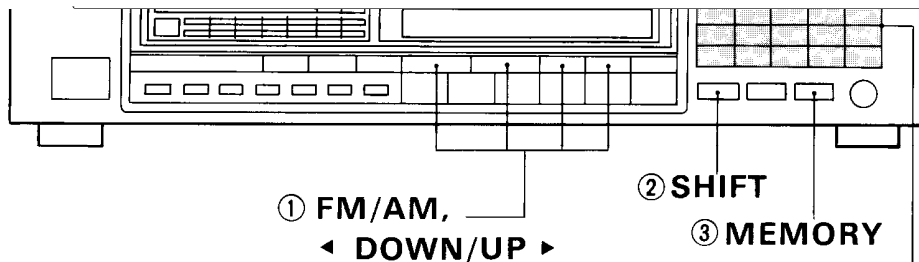


APR OPERATION button

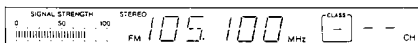
When you have used the APR control function and selected a setting different from the APR system setting, or after you have called up a broadcast selection from the memory, this button is used to return to the APR setting. After the APR setting is done, the button is automatically switched OFF.

Receiving preset stations (PRESET STATION MEMORY)

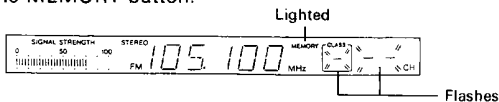
This unit can store a total of 40 FM and AM stations and each mode of APR control in the memory for instant recall at any time without



① Broadcast is received.



- Adjust the receiving conditions using the APR system buttons (RF MODE, IF BAND, HI-BLEND MODE), CABLE/MUTE and the ANT buttons. This condition can be memorized.
- ② Set the SHIFT button to the 1-20 or 21-40 mode, depending on which memory channel is to be used.
 - 21-40 mode is used in this example.
- ③ Press the MEMORY button.



- The memory indicator lights, and the classified memory display and the preset station display flash.

- The memory indicator will go out and the indicator of the pressed preset station button will come on. The frequency currently shown in the frequency display is now stored in the memory.
- If the memory indicator goes out before you have pressed one of the Preset Station Buttons, simply press the MEMORY button again to give yourself another 8 seconds.
- Placing another broadcast in the same memory channel automatically cancels the station previously stored in that channel. For example, if a 100.1 MHz station is stored using the first preset station button and then a 105.1 MHz station is stored using the first preset station button again, the 100.1 MHz station will be replaced by the 105.1 MHz station.

Notes Concerning Memory Operation

1. Preset frequencies can be transferred to other channels.
For example, the FM station stored by preset button number 6 can be transferred to preset button number 1 in the following manner.
 - 1) Press preset button number 6.
 - 2) Press the MEMORY button (memory indicator lights).
 - 3) Press preset button number 1.
 - 4) The same station is now stored by both preset buttons 1 and 6.
2. When the power is turned off or when the power cord is unplugged from the wall socket, the frequencies stored in the memory will be preserved and the last tuned station will be returned immediately when the power is turned on again. For example, if 90.1 MHz was tuned in when the power was turned off, the frequency displayed when the power is turned on again will still be 90.1 MHz. NOTE: The same applies to all APR modes; that is, the condition when the power is turned on is the same as that when it was last turned off.

To recall a station stored in the memory

Simply press the Preset Station Button corresponding to the desired station. Be sure to set the SHIFT button to the side (1-20 or 21-40) for the memory channel to be recalled. Since this is a random FM/AM memory, an AM station will be tuned in if you use a memory channel in which an AM station is stored.

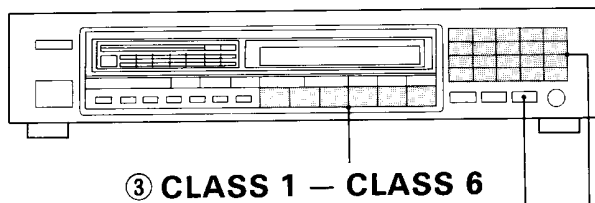
How to recall the next higher/lower preset station (Remote control transmitter only)

When the PRESET ◀ DOWN/UP ▶ button on the remote control transmitter is pressed, the next higher or lower memory channel is recalled. Each time UP or DOWN button is pressed, the following memory channel in the corresponding direction is recalled. If the button is held down the memory channel will increase or decrease continuously until button is released.

Special modes of operation

Classified Memory Function

This unit enables you to register a total of 40 preset stations among CLASS 1 to CLASS 6. Classic, Country & western, Jazz, Rock, Talk show, and Option are assigned to their respective CLASS, between 1-6.



To recall a station stored in the classified memory

Press the CLASS 1-6 button. Pressing the button will call up the stations in order of the preset number.

Pressing the class button when no memory has been preset will cause "--" to flash, then the unit will return to its previous state.

Example:

- ① Press the Preset Station Button of the type to be recalled.
- ② Press the MEMORY button.
 - MEMORY indicator lights, and the "--" of classified memory display and the preset number blink for 8 seconds.
- ③ Press one of the class buttons (CLASS 1 — CLASS 6) while the MEMORY indicator is on.
 - The MEMORY indicator goes off and the name of each class (CLASS , ENTRY , JAZZ , ROCK , TALK , OPTN) will be displayed for two seconds followed by the class numbers.

For more details.

- If you have pressed a wrong class number, or you want to change the class number, recall the preset station number to be changed to, press the MEMORY button, and then desired class number while the MEMORY indicator is on. At this time, the preset station number registered in the original class will be deleted.

Preset Memory Scan

The preset memory scan function is used to automatically recall each station stored in the memory for about five seconds. When the PRESET SCAN button is pressed, this sequence will begin with the next memory channel with a frequency higher than the one currently being used. If no higher memory channel is being used, scanning will begin with channel 1. After memory channel 40, scanning will resume from channel 1. There is no need to press the SHIFT button to switch from channels 1-20 to 21-40 during memory scanning. When scanning advances to the next channel, the corresponding preset channel indicator and the preset number at the right side of the multi function display flash on and off. The frequency of the memory channel is shown in the multi-function display. To stop scanning and listen to the channel currently being heard, press the preset station button of that channel.

How to scan the preset stations after classified memory operation

Press one of the buttons (CLASS 1-6) of the class you want to scan.

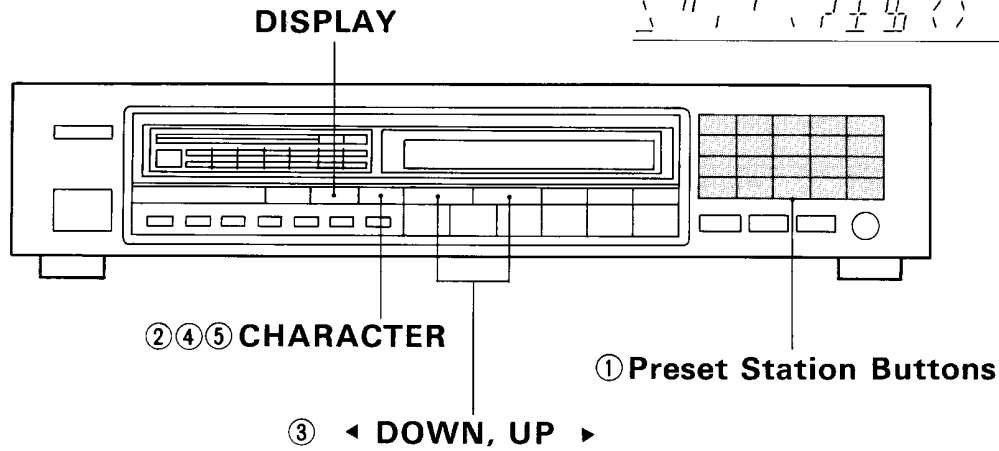
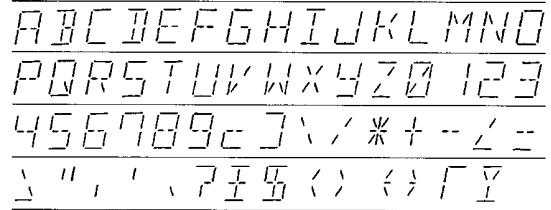
The name of the class will appear (CLASS , ENTRY , JAZZ , ROCK , TALK , OPTN).

Pressing the SCAN (PRESET SCAN) button before the display disappears will recall the preset station number already registered in the corresponding class number for about 5 seconds in increasing numerical order. When the highest number is reached, it returns to the lowest number and the scan will continue.

Naming preset stations

(Character memory function)

This function enables you to memorize a maximum of 5 characters consisting of alphabets and numbers, for instance, representing broadcasting station names, for each preset station.



The display shows an FM broadcast at 105.1MHz has been memorized in 1 CH of the preset stations, and has been named "ONKYO".

- ① Call up the station to be named, using the Preset Station Button.
 - If the broadcast has not yet been memorized in the preset station, see Page 8.

To change the character

Press the CHARACTER button to flash the character and select the desired character using the UP ► and DOWN ◀ buttons.

To delete all characters at once

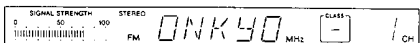
Press the DISPLAY button, while holding down the CHARACTER button.



so on when pressing the UP ► button, and changes in reverse order when pressing the DOWN ◀ button.



- Press the CHARACTER button once more if the cursor stops flashing.
- ④ Press the CHARACTER button once more when the desired character is displayed. The character will be memorized and the cursor moves to the next character.



- Flashing stops, and the naming operation is complete.

Troubleshooting guide

Trouble	Cause	Remedy
No power.	● Power cord is disconnected.	● Connect power cord.
AM stations cannot be received.	● AM loop antenna is not attached.	● Connect the included AM loop antenna to the AM antenna terminals.
Buzzing noise on AM (particularly conspicuous at night or with weak stations).	● Noise from electrical apparatus such as fluorescent lamp.	● Move AM loop antenna to different position. ● Set up outdoor AM antenna.
High pitched noise or buzzing noise on AM.	● Noise from TV.	● Place the AM loop antenna as far as possible from the TV. ● Move unit away from TV set.
Crackling noise on AM and FM.	● Noise caused by turning fluorescent lamp on and off. ● Noise from automobile ignition.	● Move antenna as far as possible from the fluorescent lamp. ● Install and FM outdoor antenna as far as possible from the road. ● Change the position or direction of the outdoor antenna.
FM signal strength indicators and stereo indicator light but sound is distorted and separation is bad.	● Station is too strong. ● Multiple reflection of the radio waves because of tall buildings or mountains.	● Change to T-shaped antenna. ● Use antenna which has better directivity and select a point where the distortion is least.
FM signal strength indicators and stereo indicator flicker and hiss is heard on FM.	● Station is too weak. ● Stereo FM broadcasts cover only about half the distance of an ordinary broadcast.	● Install an outdoor FM antenna. ● Change the position or direction of the outdoor antenna.
No station is recalled when a preset button is pressed.	● The power switch has not been turned on for a long time or the power cord has been unplugged for a long time.	● The memory contents are lost if the power switch is not turned on a few times each month. Store all stations again and remember to turn the power on a few times each month.

The tuning steps by which the tuned frequency changes on each band have been set at the factory to the proper value for the country where each unit is to be sold. If you use the unit in a country where a different tuning step is required or if the broadcast frequencies in your country change so that you can not tune in radio stations precisely, contact your authorized Onkyo Service Center.

Specifications

FM:

Tuning Range: 87.50 – 108.00 MHz (50/25 kHz steps) and/or 88.00 – 108.00MHz
 Usable Sensitivity: Mono: 10.3 dBf, 0.9 μ V, IHF (75 ohms)
 Stereo: 17.2 dBf, 2.0 μ V, (75 ohms)
 50dB Quieting Sensitivity: Mono: 16.1 dBf, 1.7 μ V (75 ohms)
 Stereo: 36.1 dBf, 17 μ V (75 ohms)
 Capture Ratio: 1.3 dB (Wide)
 Image Rejection Ratio: 100 dB
 IF Rejection Ratio: 100 dB

AM:

Tuning Range: 530 – 1710 kHz (10 kHz steps) and/or 531 – 1602 kHz (9 kHz steps)
 Usable Sensitivity: 25 μ V
 Image Rejection Ratio: 40 dB
 IF Rejection Ratio: 40 dB
 Signal-to-Noise Ratio: 40 dB
 Total Harmonic Distortion: 0.7%
 Output Voltage: 0 – 300 mV

General

Power Supply: AC120V, 60 Hz

Total Harmonic Distortion: Mono: 0.03% (wide)
 Stereo: 0.07% (Wide)
 Frequency Response: 30 – 15,000 Hz +0.5 – 1.0 dB
 Stereo Separation: 45 dB at 1 kHz (Wide)
 33 dB at 70 – 10,000Hz (Wide) ,
 Output Voltage: 0 – 1 V
 Muting Level: 17.2 dBf, 2.0 μ V (75 ohms)

Supplied accessories: AM loop antenna x 1
 FM T-shaped antenna x 1
 Connecting cable x 1
 RI remote control cable x 1
 75/300 ohm antenna adapter x 2
 Remote control transmitter RC165T x 1
 Battery AA x 2

Specifications and features are subject to change without notice.

ONKYO CORPORATION

International Division: Onarimon Yusen Bldg., 23-5, Nishi-Shimbashi 3-chome, Minato-ku, TOKYO 105, JAPAN Tel: 03-432-6987 Fax: 03-436-6979 TLX: 242-3551 ONKYO J

ONKYO U.S.A CORPORATION
 200 Williams Drive, Ramsey, N.J. 07446, U.S.A.
 Tel: 201-825-7950 Fax: 201-825-8150

