

AMC T7a

STEREO TUNER

APPLICATIONS AND FEATURE LIST

Features of the AMC model T7a

The AMC model T7a was designed to meet professional quality standards for receiving FM or AM programs.

Components of the highest grade are used throughout with critical ones selected for the best sound performance.

Such as double-sided and thru-hole plated PCB for the best stability from RF through IF to audio.

It is simple, easy to use, and offer a superb audiophile quality performance at a very reasonable price.

30 stations (FM or AM) can be entered in the preset mode. They are stored in a non-volatile memory which allows the preset stations to remain in memory for more than two weeks even if the unit is unplugged from the mains supply.

When attempting to listen to weak stations, sometimes when the background noise becomes annoying and spoils the listener's enjoyment of the programme, there provides a MONO button on T7a to lock the tuner in the mono mode to obtain consistently quieter and cleaner sound.

Its simple and accurate circuit topology gives the unit noise free and low distortion performance.

Provides two options to upgrade the unit:

- 1 **RDS Module** - offer the convenience and benefits of RDS (Radio Data System) but without superfluous and confusing button.
- 2 **Digital Output Module** - to have digital output from tuner in order to be able to make digital recording through AMC ADC with digital pre-amp structure.

REAR PANEL CONNECTIONS

1. AC LINE CORD

Plug the AC line cord into a nearby wall outlet that provides the correct AC power line voltage, or into an unswitched convenience outlet on any AMC product.

2. FM ANTENNA TERMINAL

An antenna must be connected to the tuner for effective reception of stereo FM broadcasts. A ribbon-wire "folded dipole" antenna is included to get you started. When you stretch out the ribbon-wire antenna you will note that it is the form of a T. The "crossbar" portion of the T should be stretched out horizontally and tacked in place on a wall, on the back of a cabinet, or on the floor. The "vertical" section of the T goes to the 75 ohm FM antenna terminal through 300 ohm to 75 ohm matching transformer included in accessory package.

In view of the exceptional sensitivity of AMC tuner circuits, you may find the ribbon-wire dipole antenna is all you need for reception of strong local stations. But it is not very efficient at rejecting "multipath" and other forms of FM interference, and it cannot be easily rotated to optimize its pickup pattern for best reception of stations in different directions. The recommended options, in order of increasing cost, are as follows:

1. A basic "rabbit-ears" indoor TV antenna without auxiliary coils or tuning switches. Electrically, such an antenna is just another dipole (similar to the ribbon-wire antenna) with its tuned elements made of solid metal, but with the advantage that it can be rotated. Stretch out each of its two arms to a length of 30 inches (75cm), and orient them horizontally or at a shallow angle less than 45 degrees upward. The ribbon wire emerging from the antenna's base should be connected to the tuner's 75 ohm FM antenna terminal through 300 ohm 75 ohm matching transformer in place of the supplied ribbon-wire antenna. Now, for each station in tune, after you tune the station you can rotate the antenna for best reception.
2. A more elaborate rabbit-ears indoor TV antenna with a tuning switch. This type of antenna does NOT have greater sensitivity than the simpler rabbit-ears unit, so if your problem is that the signals you want to receive are weak, then an outdoor antenna is the only effective solution. But in cities and in large buildings where signals are strong but are contaminated by reflected "multipath" signals that interfere with good reception, the tuning switch on an elaborate indoor antenna may improve reception by reducing the interference.
2. An electrically tuned indoor antenna. Again, such antennas usually do not provide any advantage over the simplest type of "rabbi-tears" unit for receiving weak signals. But where strong signals are contaminated with interference, the antenna's aiming and tuning controls can reject the interference and yield cleaner reception.
3. An outdoor antenna. Even the finest indoor antenna, no matter how elaborate, cannot fully exploit the capabilities of a good FM tuner. For the lowest noise, minimum distortion, and largest choice of well-received broadcasts, an outdoor antenna is the best complement to a fine tuner. A roof-mounted antenna has three fundamental advantages. First, its large size yields better sensitivity (pulling in a stronger signal from the desired station) and a narrower directional pattern for more effective rejection of multipath reflections arriving from other directions. Second, its location on a roof or tall mast places it above many sources of interference passing cars and buses, other buildings, etc. Third, the strength of received FM signals is directly proportional to the height of any antenna above the ground. If you already have an outdoor television antenna, using a splitter to extract FM signals from it may produce excellent results. However, many TV antennas are deliberately designed to be relatively weak at FM frequencies in order to minimize potential interference with TV signals at nearby frequencies (channel 6 in the U.S.). You may be able to use a splitter to extract FM signals from an apartment building's master TV antenna system, but usually this yields poor results because many master antenna systems have "traps" to stop FM signals. The best choice is a directional FM-only antenna, mounted as high above ground as is practical, and separated by at least two meters (7 feet) from other antennas, vertically and horizontally. If desired stations are located in different directions (more than 90 degrees apart), the antenna should be mounted on a rotor for aiming. Use shielded lead-in cable rather than plain "twin-lead" wire, both to minimize interference and to preserve strong signals during years of weathering. The cable may be either 75-ohm coaxial or shielded 300-ohm type. Disconnect any indoor antenna before connecting the cable from the outdoor antenna. If you install an outdoor antenna yourself, observe these important CAUTIONS:
 - a. Do not mount the antenna close to electric power lines. Plan the installation so that the antenna mast cannot accidentally touch power lines, either while you are installing it or later.
 - b. Include a lightning arrester in the installation, to protect both yourself and the tuner circuit from potential danger during electrical storms.

3. AM ANTENNA TERMINALS

Since the tuner is equipped with loop antenna, no external antenna will be needed for satisfactory reception of most local broadcasting stations. But if you wish to improve reception of distant AM stations, attach a long-wire outdoor antenna to the AM terminal. As its name implies, a "long-wire" antenna is a simple, straight wire whose length may be

anything from a few feet up to about 100 feet (30 meters), mounted parallel to the earth and as high as convenient. In some cases the effectiveness of a long-wire antenna will be improved by connecting a second wire from the Ground (G) terminal to a true earth-ground, i.e. a copper-plated rod driven several feet into earth. A substitute electrical ground may also improve effective: a cold-water pipe, a seam radiator, or the third hole of modern electrical wall socket.

4. OUTPUT JACKS

Connect a stereo patch cord from the Left and Right output jacks to the corresponding Tuner input jacks on your amplifier.

5. DIGITAL OUTPUTS (Option)

This is an optional module for T7a. If your AMC T7a has incorporated with **Digital Output Module** the unit will be available with digital output in two types of jack (RCA Jack and Toslink Jack). For details please check with AMC dealer/distributor in your country.

FRONT PANEL CONTROLS

1. POWER SWITCH

The AMC T7a is turned on by pressing the power switch. The small indicator above the switch will glow green.

2. STATION PRE-SETS

You can store the frequencies of thirty favorite stations (FM and AM), in these pre-sets, using the MEMORY button. Then, to tune those stations from day to day, just press the appropriate pre-sets buttons. The pre-sets preserve their frequency assignments when the power is switched off, or when the AC line cord is unplugged, for a period of at least two weeks. Thus you can re-arrange your stereo system, or move the equipment from room to room, without losing the pre-set frequencies. But if you leave the power off for a month or more, you may have to re-program the tuning pre-sets.

3. MEMORY

This button engages the Memory enter mode. Use this mode to enter the frequencies of your favorite stations in the thirty pre-sets (FM and AM). The procedure is as follows.

1. Decide which station you want to assign to each pre-set.
2. Select the FM or AM band, as appropriate. Using the Tuning control, manually tune to the first station on your list. Check the center-tune indicator to be sure that you have tuned precisely to the center of the station's broadcast channel. Press the MEMORY button, then press Pre-set #01 to store the first station in the tuner's memory. (NOTE: After you press MEMORY, you will have approximately five seconds to store a station in one of the pre-sets. After that interval, the MEMORY mode will automatically de-activate).
3. Tune to the second station on your list. Press the MEMORY button and, within ten seconds, press Pre-set #02 to store the second station.
4. Tune to the third station on your list, press MEMORY and press Pre-set #03 to store the station. Continue in this manner with any other stations that you want to store in the remaining pre-sets. Incidentally, if you make a mistake or change your mind, it is not necessary to re-program all pre-sets in sequence. You can re-

program any pre-set simply by tuning to the desired frequency, press MEMORY, and pressing the pre-set # that you want to re-program. After you finish programming the pre-sets, you may wish to post your list of stations and associated pre-set numbers nearby for reference.

CAUTION: in day-to-day operation be careful not to press the MEMORY button by accident. Doing so will activate the MEMORY mode, and if you then press any of the pre-set buttons you will unintentionally re-program that pre-set. You would then have to manually re-tune to the station you wanted, and re-program it into the pre-set. If you press MEMORY accidentally, you may wait ten seconds for the MEMORY mode to disengage. Or you can immediately force the tuner out of the MEMORY mode, in either of two ways: switch to the other tuning band (e. g. from FM to AM and back), or tap tuning buttons to change the tuned frequency.

4. AM/FM

This button switches between the two tuning bands: FM or AM. The digital tuning display shows the tuned frequency in MHz (for FM) or KHz (for AM). The tuning circuit has a "last station selected" memory. When you switch between tuning bands, the circuit automatically re-tunes the last station that you were tuned to when you previously used that band.

5. MONO

The MONO button disables the stereo FM circuits in the tuner. Normally the tuner receives monophonic FM transmissions in mono and automatically switches on its multiplex decoding circuits when a stereo FM broadcast is received (as shown by the STEREO indicator). But when a very weak FM station signal is received, it may be excessively noisy because of the multiplex encoding technique used for stereo broadcasting. In that case, press MONO button to lock the tuner in the MONO mode, in order to obtain consistently quieter and cleaner sound. Remember to disengage the MONO button when you re-tune to a stronger signal. As long as the MONO button is engaged, no broadcasts can be received in stereo.

6. AUTO

When the AUTO button is engaged, a red LED on the display will be lit, otherwise the unit is in MANUAL mode. In AUTO mode, the tuner scans in a station-by-station mode rather than in small frequency increments. When the Tuning buttons is tapped, the tuner scans rapidly up or down in frequency and automatically stops at the next station whose signal is strong enough for good reception. A muting circuit automatically silences the output during the scan, until the tuning circuits lock onto a station. The MANUAL tuning mode partially over-rides the scan muting. In this mode all stations (and the inter-station noise) remain audible at a reduced volume level while the tuning is being scanned up or down in frequency. If you want to search for very weak signals, or if you need to fine tune away from the center of a station's broadcast channel in order to cure an interference problem, use the manual tuning mode.

7. TUNING

The TUNING controls are two buttons that allow you to tune up and down the AM or FM radio spectrum. Press the right-hand button to tune toward higher frequencies or the left-hand button to tune toward lower frequencies. When the TUNING buttons are pressed momentarily, the tuned frequency shifts up or down by one step, unless the AUTO mode has been engaged. (If AUTO is engaged the tuner will scan in a station-by-station mode rather than in small tuning

steps) In North America the size of the minimum tuning step is 10KHz on the AM band and 200KHz on the FM band. In Europe and elsewhere the tuning step is 9KHz on AM and 50KHz on FM. Each time the TUNING buttons are tapped, the tuned frequency will shift up or down by this increment, as shown on the digital frequency display.

To tune a broadcast signal, press continuously on either TUNING button until the tuned frequency is close to the desired broadcast frequency. Then fine-tune in small increments by tapping the Tuning buttons. If you know the exact frequency of the broadcast station, simply tune to that frequency. If you don't know the exact frequency, tune to the vicinity of the correct frequency and then observe the Tuning indicators while fine-tuning to obtain maximum signal strength. On FM, fine-tune till the center-tune indicator is illuminated.

8. TIME

When the TIME button is pressed, the time is displayed. The first two characters on the left hand side of the display will indicate either AM or PM, followed by the time. If the selected station is not transmitting a time signal, "NO CLOCK" will appear in the display.

9. TEXT

When the TEXT button is pressed, a repeated textual message will be scrolled through the display. If the selected station is not transmitting a TEXT message, "NO TEXT" will appear in the display.

10. TYPE

When the TYPE button is pressed, the type of program material transmitted by the selected station will be displayed, e.g. News, Classic, Pop, Sport etc. If the selected station is not transmitting TYPE information, "NONE" will appear in the display.

11. PROGRAM

When the PROGRAM button is pressed, the selected station name will appear in the display. If the selected station is not transmitting the station name, "NO NAME" will appear in the display.

Notes: When your T7a is not installed with RDS module, you will not find these RDS functions that are described from item (8) to (11) on your unit. For details to upgrade your T7a with RDS module please contact your AMC dealer or distributor in your country.

REMOTE CONTROL

A wireless remote control is provided with your T7a enabling you to operate from the comfort of your chair. For reliable operation there should be a clear line-of-sight path from the remote control to the front of the tuner.

Most buttons on the remote control produce the same effect as the corresponding button on the front panel of the tuner. To understand these functions please refer to relevant sections. However, the handset is also equipped with two functions (SCAN and PRESET) that are not found on front panel. The operations of these functions are described as follows:

SCAN

The SCAN has two buttons that allow you to tune up and down the AM or FM radio spectrum. Press the ">" button to tune toward higher frequencies or "<" button to tune toward lower frequencies. When the SCAN buttons are pressed momentarily (<0.5 second), the tuned frequency shifts up or down by one step. When the SCAN buttons are pressed and held more than 0.5 second, the tuner will scan in a station-by-station mode rather than in small tuning steps.

PRESET

Once the frequencies of favorite stations (up to 30 in either FM or AM) have been stored in this unit. To see how to set up memory stations please refer to MEMORY description. Then, just press the PRESET buttons the stations in the memory of the unit can be easily tuned.

SPECIFICATIONS

FM TUNER SECTION

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| Input Sensitivity MONO -30 dB THD+N | 11.3 dBf (1.0 uV/75 ohm) |
| MONO -50 dB S/N | 15 dBf (1.5 uV/75 ohm) |
| STEREO 50 dB S/N | 37 dBf (20 uV/75 ohm) |
| STEREO 60 dB S/N | 47 dBf (60 uV/75 ohm) |
| Capture Ratio (45 and 65 dBf) | <1.5 dB |
| AM Rejection (45 and 65 dBf) | >60 dB |
| Selectivity ALTERNATE CHANNEL | 65 dB |
| Image Rejection | 80 dB |
| RF Intermodulation | 60 dB |
| IF Rejection | 90 dB |
| Subcarrier Suppression (19 and 38 kHz) | 60 dB |
| THD at 100% Modulation MONO 1 kHz | 0.08% |
| 100 Hz-6 kHz | 0.20% |
| STEREO 1 kHz | 0.08% |
| 100 Hz-6 kHz | 0.30% |
| Signal/Noise Ratio MONO | >78 dB |
| (at 65 dNf, 1HF weighted) STEREO | >74 dB |
| Frequency Response 30 Hz-15 kHz | +/-0.5 dB |
| Stereo Separation 1 kHz | 50 dB |
| 30 Hz-10 kHz | 35 dB |
| Output Level | 530 mV |

AM TUNER SECTION

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|---|-------|
| Useable Sensitivity | 10 uV |
| Selectivity | 30 dB |
| Image Rejection | 45 dB |
| IF Rejection | 35 dB |
| Signal/Noise Ratio (30% modulation, 50mV input) | 45 dB |
| THD | 0.50% |
| Output Level | 125mV |