

# Active Tuning Antenna System ATAS-25 Installation/Operating Instructions

Thank you for choosing Yaesu's exciting new ATAS-25 Active Tuning Antenna System. We hope and trust that you will enjoy many years of enjoyable field operation with the ATAS-25!

The ATAS-25 utilizes a manual tuning system which resonates the radiating element for lowest SWR without the need for expensive, inconvenient mono-band resonating whip assemblies. The ATAS-25 allows dual-frequency operation (on HF or 50 MHz and either 144 or 430 MHz); if two transceivers are combined via a suitable diplexer (not supplied). The ATAS-25 is designed to mount directly onto a standard camera tripod (not supplied); see Figure 1.

## INSTALLATION

1. Mount the ATAS-25 main body onto the tripod.
2. Referring to Figure 2 and the following chart, connect the radiating elements according to the operating band, then screw the radiating element securely to the top of the coil assembly of the ATAS-25.

OPERATING BAND	RADIATING ELEMENT(S)
7 MHz	Three Elements
14 MHz	Three or Two Elements
21 MHz	Two Elements
28 MHz	Two or One Element(s), or No Connection
50 MHz	Do Not Connect
144 MHz	Not Used
430 MHz	Not Used

**NOTE:** When the ATAS-25 is fitted with two radiating elements, use the top radiating element (the one with the rubber cap) and the bottom radiating element (the one with the threaded adapter at the bottom). When the ATAS-25 is fitted with only one radiating element, move the threaded adapter to the bottom of the element with the rubber cap, then screw that element onto the top of the coil assembly (Figure 3).

3. Secure the V/UHF radial elements to the bottom of the ATAS-25 main body, using the supplied Allen wrench (Figure 4).
4. Connect the supplied radial wires to the bottom of the ATAS-25 main body, then extend them outward from the antenna base (Figure 5).
5. Connect the coaxial cable from the transceiver's HF antenna jack (see Figure 6). Typically, you can use the built-in SWR meter in the transceiver, but alternatively you may adjust the SWR using an "Antenna Analyzer" prior to connecting the coaxial cable to your transceiver.

If you operate the ATAS-25 along with the FT-817, we recommend that you set the transceiver's Menu #07 (ANTENNA) to "REAR" for all bands (HF/50/144/430 MHz), to pass all bands' RF power to the rear antenna jack of the FT-817. Refer to the FT-817 operating manual for details regarding the Menu selections.

For operation on the 144 and 430 MHz bands, in addition to HF/50 MHz using the FT-847/-100/-100D/-857/-897, you may wish to consider the purchase of a "Diplexer" (for the FT-100/-100D/-857/-897) or "Triplexer" (for the FT-847) device to connect to the appropriate transceiver's antenna jack; the Diplexer or Triplexer will then automatically pass RF power from the band in use while isolating the other one or two jacks. If you do not have a Diplexer or Triplexer, the coaxial cable connector from the ATAS-25 will

have to be moved manually to the appropriate antenna jack when you wish to operate on VHF or UHF. While operation is not guaranteed on these bands, as low SWR and please feel free to experiment on these bands, a low SWR and good efficiency will be obtained in many instances.

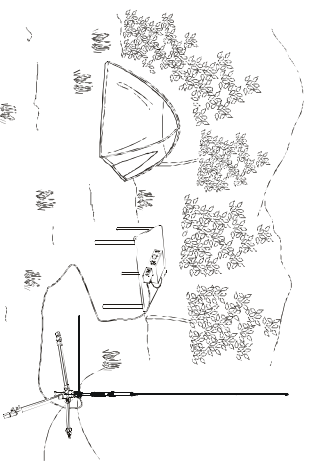


Figure 1

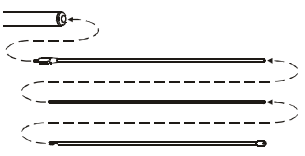


Figure 2

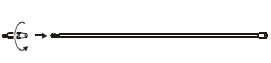


Figure 3



Figure 4



Figure 5

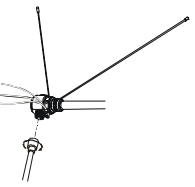
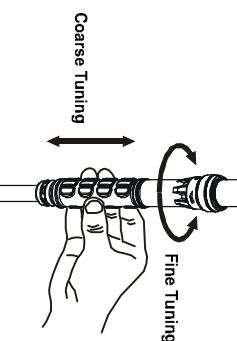


Figure 6

## OPERATION

For the 144/430 MHz bands, you may operate instantly without making any adjustments. For HF/50 MHz operation, perform the following procedures for antenna adjustment:

1. Tune the transceiver to the desired operating frequency, while listening to the band noise, and seek the position of the coil assembly producing the most noise in the receiver. If a peak in the sensitivity is not obtained when the coil assembly is fully retracted to the lowest (shortest) position, remove one radiating element from the coil assembly and try again. You may have a total antenna length that is too long.
3. Key the transmitter in the CW mode, and check the SWR meter reading.
4. Referring to Figure 7 again, carefully turn the coil assembly to the right or to the left while the transceiver is receiving. After making an adjustment, stand away from the antenna and check the SWR again, and repeat (or reverse) the procedure until the best SWR is obtained. **Do not touch the coil assembly during a transmitting session.**
5. If low SWR on an HF band cannot be satisfactorily obtained, connect (add) the supplied spare radial wire to the bottom of the ATAS-25 main body and extend it outward from the antenna base, then try the above procedures



Coarse Tuning

Fine Tuning

## CAUTIONS

- The ATAS-25 is designed for temporary field operation. We do not recommend that the ATAS-25 be used for permanent operation, as it does not include the weatherproofing needed for long-term outdoor installation.
- The ATAS-25 is designed for a maximum power of 100 Watts (SSB/CW) or 50 Watts (AM/FM, 144 MHz, 430 MHz). Do not exceed this combined power input (if two transmitters are connected via a diplexer) when operating the ATAS-25.
- Do not connect (mount) the ATAS-25 to the antenna jack of the transceiver or antenna mount directly using a double-male coaxial adapter plug. The ATAS-25 must be mounted onto a tripod or other similar item using the Camera Screw hole (Type "U<sub>1/2</sub>") on the bottom of the ATAS-25 main body.
- Do not allow anyone to touch the radiating element during a transmitting session, due to the danger of burning of the skin caused by the high RF voltage present. It helps the accuracy of the SWR measurements if all people are standing at least 10 feet (3 m) away from the radiating element, anyway, to minimize inaccuracies due to mutual coupling to the human figure(s) in the vicinity.
- If erratic transceiver operation is observed, there may be common-mode current flowing on the shield of the coaxial cable. Make an RF choke by coiling about eight turns of cable into a coil of diameter approximately 6" (roughly 150 mm) near the ATAS-25, taping the coils to hold them in place. If this does not eliminate the problem, reverse the coax ends, placing the coil near the transceiver. If additional cable is available, place a coil at both ends of the coaxial cable in difficult cases.
- Set up the tripod as low and level as possible, for maximum stability of the tripod/antenna assembly. SWR tends to be best with the base of the ATAS-25 near the ground, as well (Figure 1).
- Should the ATAS-25 get wet due to rain, wipe off the antenna's components using a dry cloth, then completely dry the ATAS-25 overnight with the coil assembly fully extended.
- For SSB/CW DX operation on the 144/430 MHz bands, remember that the convention for polarization in most areas is horizontal, not vertical, so we recommend the ATAS-25 mostly for local FM work on those bands.
- Make every effort to install the ATAS-25 away from areas where people might trip over the tripod legs, coaxial cable, or counterpoise wires. We strongly recommend that the tripod legs be staked firmly to the ground, or the tripod and antenna be otherwise secured with guy ropes and stakes, to prevent the antenna from accidentally tipping over, so as to avoid injury to bystanders and/or damage to antenna components.

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