

# 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-817ND**, 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-817ND**. Refer to the **FT-817ND** 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/-857D/-897D**, you may wish to consider the purchase of a "Diplexer" (for the **FT-100/-100D/-857D/-897D**) or "Triplexer" (for the **FT-847**) device to contact 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

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the appropriate antenna jack when you wish to operate on VHF or UHF.

While operation is not guaranteed on the 10/18/24 MHz bands, please feel free to experiment on these bands, as low SWR and good efficiency will be obtained in many instances.



Figure 1

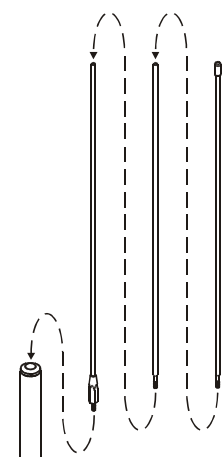


Figure 2

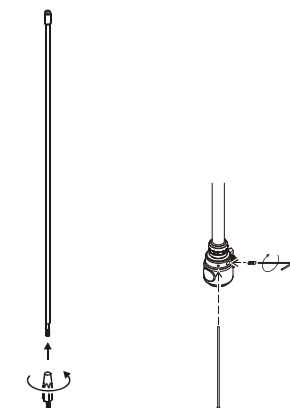


Figure 3

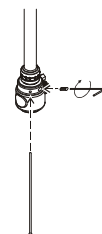


Figure 4

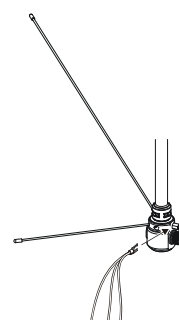


Figure 5

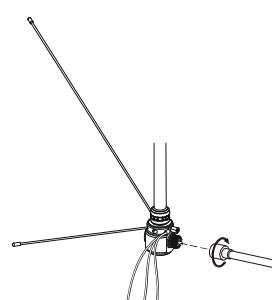


Figure 6

#### OPERATION

1. Tune the transceiver to the desired operating frequency.
2. Referring to Figure 7, raise and lower the coil assembly 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 again.

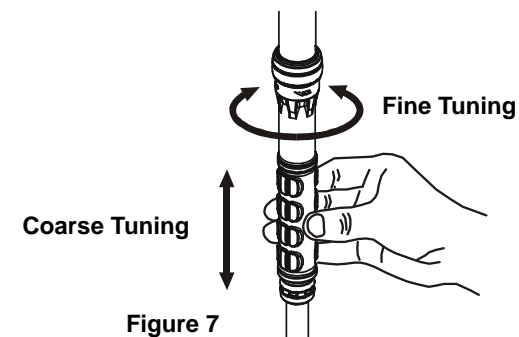


Figure 7

#### USE OF CAPACITOR TUBE

If it is not possible to achieve a low SWR on the 144 MHz band, pass the supplied "Capacitor Tube" onto the VHF radial element, then slide the Capacitor Tube outward, starting at the innermost position, so as to obtain the best SWR. When the optimum position is identified, secure the Capacitor Tube to the radial element using the supplied Allen wrench.

Slide the Capacitor Tube outward from inner end to Position yielding best SWR.

VHF Radial Element

Secure the Capacitor Tube using the supplied Allen Wrench.



#### SPECIFICATIONS

**Frequency Range:** 7/14/21/28/50/144/430 MHz

Amateur Bands

**Input Impedance:** 50 Ohms

**Max. Input Power:** HF/50 MHz: 100 W (SSB/CW, 50% Duty)  
50 W (AM/FM)

144/430 MHz: 50 W (ALL MODE)

**Matched SWR:** Less than 2.0:1

**Height (Approx.):** Max. 7.2 ft (2.2 m) during Operation  
Min. 1.96 ft (0.6 m) for Transporting

**Weight (Approx.):** 2.05 lb. (930 g)

#### 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 weather-proofing 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 "U¼") 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.

#### SUPPLIED ITEMS

|   |   |
|---|---|
| ATAS-25 Main Body .....   | 1 |
| Radiating Elements .....  | 3 |
| Radial Element (for VHF band) .....                                   | 1 |
| Radial Element (for UHF band) .....                                   | 1 |
| Radial Wires (20 ft (6 m) , 9.8 ft (3 m) & 6.6 ft (2 m) Length) ..... | 1 |
| Spare Radial Wire (32.8 ft (10 m) Length) .....                       | 1 |
| Capacitor Tube .....  | 1 |
| Allen Wrench .....  | 1 |
| Operating Manual .....  | 1 |

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