OPERATION

Tuning is required for each frequency. Be sure to retune the antenna before transmitting when you change the frequency—even slightly.

(eg. IC-7000)

1. Set the desired frequency in an amateur band.
   - The AH-4 will not operate on frequencies outside of ham bands.
   - “TUNE” indicator blinks, and the AH-4 is bypassed and the antenna is directly connected to the antenna connector on the transceiver.
3. To manually bypass the AH-4, push [TUNER/CALL].

Hold down [TUNER/CALL] for 1 second.

CALCULATION OF UNDESIRABLE ANTENNA LENGTHS

Length of half wave \( \frac{1}{2} \lambda \) = \( \frac{300}{\sqrt{\text{Operating frequency (MHz)} + \frac{1}{2}} \)

[EXAMPLE] Antenna lengths to avoid when operating at 29.00 MHz

Multiple of \( \frac{1}{2} \lambda \) = \( \frac{300}{29} \) \times (1, 2, 3, ...) = 5.2, 10.3, 15.5 m

SPECIFICATIONS AND OPTIONS

- **Specifications**
  - Frequency range: 3.5–54 MHz (with an antenna longer than 7 m/23 ft)
  - 7–54 MHz (with the AH-2b)
  - Maximum input power: 120 W
  - Input impedance: 50 Ω
t  - Tuning power required: 5 tot 5 watts
  - Rated voltage: 13.8 V DC ±15% (current less than 1 A)
  - Useable temperature range: \(-10°C \text{ to } +60°C \text{ (+14°F to +140°F)}\)
  - VSWR: 2.0:1 or less (except antennas a one half wave or multiple of a one half wave in length)
  - Weight (approximately): 1.2 kg (2.65 lb)
  - Dimensions: 172(W) \times 69.5(H) \times 230(D) mm
  - (projections not included): 6.8(W) \times 2.7(H) \times 9.1(D) inches

- **Options**
  - OPC-420 SHIELDED CONTROL CABLE
  - Shielded control cable helps protect the transceiver from RF feedback and extends separation between tuner and transceiver up to 10 m. (cable length 10 m; 32.8 ft)
  - AH-2b ANTENNA ELEMENT
  - A 2.5 m long antenna element for mobile operation with AH-4. Frequency coverage: 7–54 MHz with the AH-4.

FEATURES

- **WIDE TUNING RANGE**
  - The AH-4 provides reliable matching from 3.5 MHz to 54 MHz when using at least a 7 m (23 ft) antenna; or 7 MHz to 54 MHz when using the AH-2b ANTENNA ELEMENT.

- **AUTOMATIC DIGITAL CONTROL TUNING**
  - The built-in 8-bit microprocessor chooses the lowest SWR using more than 1,040,000 different LC (coil/capacitor) combinations.

- **45 FREQUENCY MEMORIES FOR FAST TUNING**
  - The LC combinations of 45 previously-used frequencies are automatically memorized. Once a frequency is memorized, the AH-4 tunes on that frequency in less than 1 second. Note that the AH-4 does not memorize a frequency which is normally tuned within 2.5 seconds. Memories are retained only when the power is on.

- **WEATHERPROOF DESIGN**
  - The AH-4's tightly sealed plastic case allows convenient mounting virtually anywhere. The AH-4 can be mounted outdoors under your antenna.

- **0.3 W RADIATED POWER**
  - Radiated power during tuning is less than 0.3 W, minimizing interference to other stations.

NOTE:
- The AH-4 can be used with most of Icom HF transceiver, which covers HF through 50 MHz bands. However, the IC-705 and IC-736 can only be tuned in the 3.5–30 MHz range.

SUPPLIED ACCESSORIES

- 1 U-bolts ................................................. 2
- 2 U-bolt brackets ...................................... 2
- 3 Flat washers (M6 large) ......................... 8
- 4 Flat washers (M6 small) ......................... 4
- 5 Spring washers (M6) .............................. 8
- 6 Nuts (M6) .............................................. 8
- 7 Hex head bolts (M6 × 50) ....................... 4
- 8 Self-tapping screws (AD 6 × 30) ............... 4
- 9 PL-259 connectors ................................. 2
- 10 Weatherproof cap ...................................... 1
- 11 Rubber vulcanizing tape ........................... 1
- 12 Control cable* (5 m; 16.4 ft) .................... 1
- 13 Coaxial cable* (SD-2V; 5 m; 16.4 ft) ......... 1

*Not shown in the illustration to the left.
**INSTALLATION**

- **NOTE:** After inserting the coaxial cable through the waterproof cap and into the AH-4 top cover, solder the PL-259 connector to the coaxial cable.

1. Remove the top cover (Fig. 1).
2. Install the control cable and coaxial cable (Fig. 1).
3. Connect and solder the PL-259 connector to the coaxial cable (Fig. 3).
4. Connect the control cable to the AH-4 (Fig. 2-1).
5. Connect the GND cable to the AH-4 (Fig. 4).

- **NOTE:** After you tighten the wing nut, carefully bend the wire terminal up so the wire lines up with the insulator.

- **NOTE:** Before you tighten the wing nut, make sure the base nut is firmly tightened.
- **NOTE:** After you tighten the wing nut, carefully bend the wire terminal up so the wire lines up with the insulator.

- **NOTE:** When attaching the tuner cover, make sure dust or other material does not adhere to the rubber seal. If dust or other material is on the seal when attaching, waterproof protection may not be guaranteed. Make sure the rubber seal is properly sealed into the groove.

**Fig. 1 COVER REMOVAL AND CABLE INSTALLATION**

- **NOTE:** Make sure the cable clamps are well tightened with the screws, otherwise the waterproof protection may not be guaranteed.
- **NOTE:** We recommend that you also wrap rubber vulcanizing tape or electrical tape over the wrapped rubber when attaching, waterproof protection may not be guaranteed.

- **NOTE:** After inserting the coaxial cable through the water cool, carefully bend the wire terminal up so the wire lines up with the insulator.

- **NOTE:** Before you tighten the wing nut, make sure the base nut is firmly tightened.
- **NOTE:** After you tighten the wing nut, carefully bend the wire terminal up so the wire lines up with the insulator.

**Fig. 2-1 CABLE CONNECTIONS (eg. IC-7000)**

- **NOTE:** Connect the coaxial cable to the appropriate antenna connector if the transceiver has more than one. See your transceiver’s instruction manual for details.

**Fig. 2-2 Waterproofing the antenna connection**

**Fig. 3 PL-259 CONNECTOR SOLDERING**

**Fig. 4 GROUND CONNECTIONS**

**Fig. 5 MOUNTING THE AH-4**