# AT-3K Tuner Operating Manual

Denfron

## Description

The Model AT-3K Antenna Tuner is a precision-built, compact, high performance instrument of advanced design, providing maximum possible flexibility for the operator.

The AT-3K is equipped with an in-line relative power SWR meter showing simultaneously forward and reverse power on two separate precision meters, with front panel sensitivity control for SWR calculation.

The AT-3K has been designed to match any transmitter (3000 watts P.E.P maximum) to a multitude of antenna systems, including three coaxial lines, a long wire system, and a balanced feed line with optional balun. There is also a switch position for a Dummy Load such as a DenTron Big Dummy, which can be used to tune up without on-air interference. The AT-3K will tune any of these systems from 1.8-30 MHz and it will handle a full 3kw P.E.P. Built modularly, the AT-3K makes the ideal addition to any HF communication system operating between 1.8-30 MHz.

# **AT-3K Specifications**

Frequency Coverage: 1.8-30 MHz Continuous

Input Impedance: 50 ohms (Resistive)

Output Impedance:

Coax 1 50 ohms nominal

Coax 2 50 ohms nominal May range from a few ohms to a high impedance.

Coax 3 50 ohms nominal

Long Wire either High or Low Impedance

Balanced Line 75 to 600 ohms (with optinal Balun) feed line impedance

Power Capability: 3000 watts P.E.P.

Dimensions: 4" high, 12" wide, 131/2" deep

Weight: 12 lbs.

Front panel controls are provided for the adjustment of transmitter matching, antenna matching, inductance selector, antenna selector and meter sensitivity.

# Warning

Do not put more than 100 watts into the AT-3K prior to tuning. Always tune with small powers. Only after tuning increase driver gain to maximum output. Do not use inductance selector or antenna selector with power applied to the AT-3K.

# Installation

#### Unpacking

Carefully remove the AT-3K from the shipping carton and examine it for evidence of damage. Immediately notify the shipping company should any damage be found.

#### Location

The AT-3K will work properly in almost any location. Select a location on the operating table that will allow easy access to the control knobs.

#### Connections

Connect the RF Output of your transmitter to the input connector of the AT-3K, using 50 ohm coaxial cable such as RG-8/U. Connect the coaxial line of your antenna to COAX 1 connector. Connect another coaxial line of a second antenna to COAX 2 connector. A third coax antenna can be connected to COAX 3 connector. Connect a long wire antenna to post marked LONG WIRE. Also connect a good ground to GND post.

Connect coaxial line to connector marked BALANCE. Connect a coaxial line from Dummy Load to a DenTron Big Dummy. You now have a choice of five antennas and a dummy load which you switch from the front panel. You can also, from the front panel, bypass the AT-3K on COAX 1 and Dummy Load.

## Operation

- 1. Switch Antenna Selector to ("Dummy Load" and tune up the exciter into a 50 ohm Dummy Load; this will preset the exciter controls for a 50 ohm resistive load. Then switch to the proper antenna to be used.
- 2. Set "Transmitter Matching" and "Antenna Matching" controls to position 5.
- 3. Listen on receiver for maximum band noise while turning inductance selector for maximum noise.
- 4. Feed enough power through the system to get a reading on the reflected meter with the sensitivity control set fully clockwise.
- 5. Rotate inductance control for a drop on this reading.
- 6. Adjust "Transmitter Matching" and "Antenna Matching" controls for a minimum reading on the reflected meter.
- 7. After tuning up, rotate the set control to the set line on the Relative Power meter. The SWR will be calculated automatically.

## **Parts List**

C<sub>1</sub>, C<sub>2</sub> L<sub>1</sub> 120 Pf Variable Primary Coil



