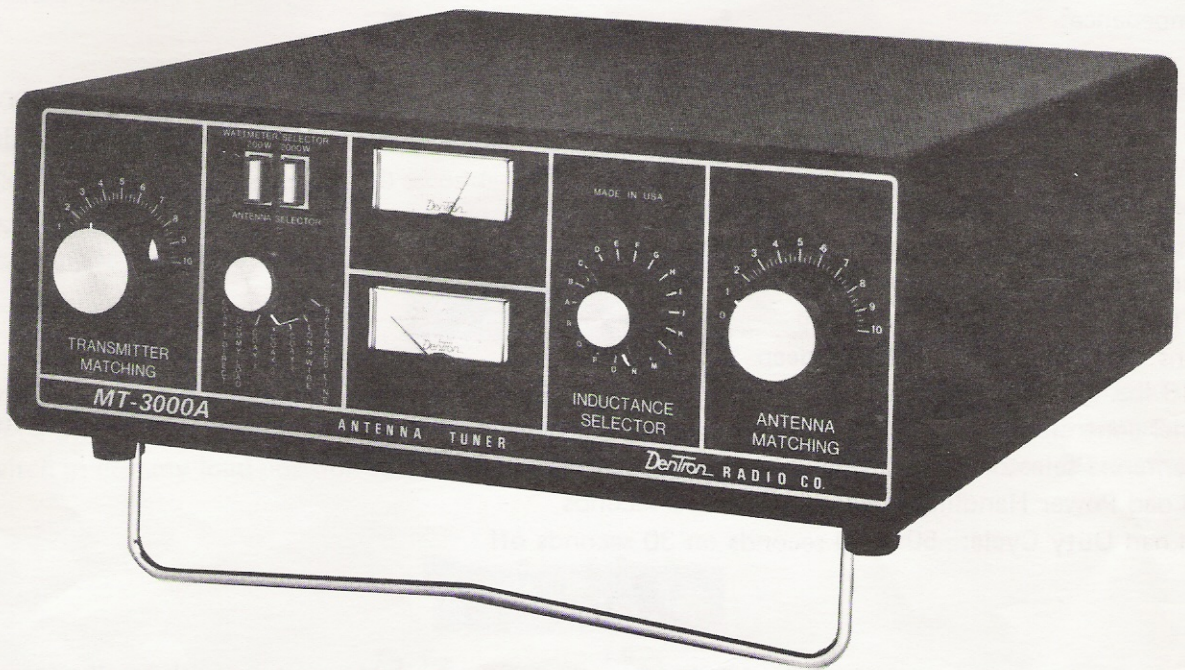


# **MT-3000A**

## **Operating Manual**

**Dentron**



# Description

The Model MT-3000A Antenna Tuner is a precision-built, compact, high performance instrument of advanced design, providing maximum possible flexibility for the operator.

The MT-3000A is equipped with an in-line dual wattmeter showing simultaneously forward and reverse power on two separate precision meters, with front panel pushbutton switchable ranges.

The MT-3000A 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. There is also a built-in 200 watt Dummy Load which can be used to tune up without on-air interference. The MT-3000A will tune any of these systems from 1.8-30 MHz and it will handle a full 3kw P.E.P. Built modularly, the MT-3000 makes the ideal addition to any HF communication system operating between 1.8-30 MHz

## MT-3000A 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

Coax 3 50 ohms nominal

} May range from a few ohms to a high impedance.

Long Wire either High or Low Impedance

Balanced Line 75 to 600 ohms

Power Capability: 3000 watts P.E.P.

Wattmeter Accuracy:  $\pm 10\%$  full scale

Insertion Loss: .5 db or less after tuning

Dimensions: 5½" high, 14" wide, 14" deep

Weight: 18 lbs.

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

Dummy Load Power Handling: 200 watts for 30 seconds

Dummy Load Duty Cycle: 50%, 30 seconds on 30 seconds off

## Warning

Do not put more than 100 watts into the MT-3000A 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 MT-3000A.

## Installation

### Unpacking

Carefully remove the MT-3000A from the shipping carton and examine it for evidence of damage. Immediately notify the shipping company should any damage be found.

### Location

The MT-3000A 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 transmitter connector of the MT-3000A, 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 balanced feed line to posts marked BALANCE. You now have a choice of five antennas and a dummy load which you can switch from the front panel. You can also from the front panel bypass the MT-3000A on COAX 1 only.

# Operation

1. Switch Antenna Selector to "Dummy Load" and tune up the exciter into the 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.
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.

## Dummy Load

The MT-3000A is equipped with a built-in dummy load which can be selected from the front panel. This dummy load is capable of handling 200 watts for a period of 30 seconds.

The Duty Cycle is 50% (30 seconds on - 30 seconds off).

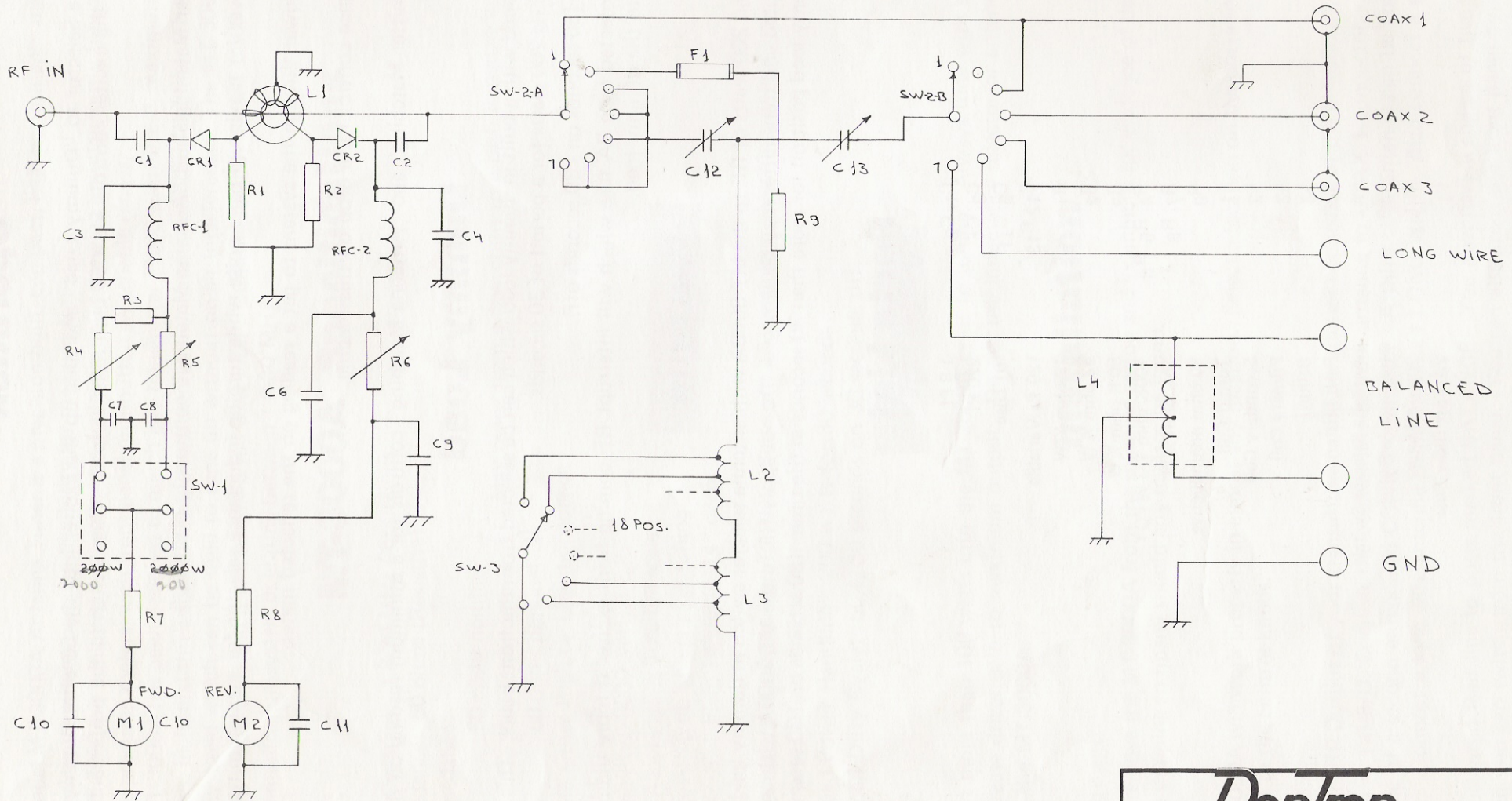
The dummy load is protected by a 2A fuse which will interrupt RF coming from exciter if more than 200 watts are applied to the dummy load.

## Warning

Do not apply more than 200 watts of RF to the MT-3000A with antenna selector switch in dummy load position, or fuse will be interrupted and transmitter may be damaged. Do not apply RF to the MT-3000A with antenna selector switch in dummy load position for more than 30 seconds at the time. (30 seconds on - 30 seconds off)

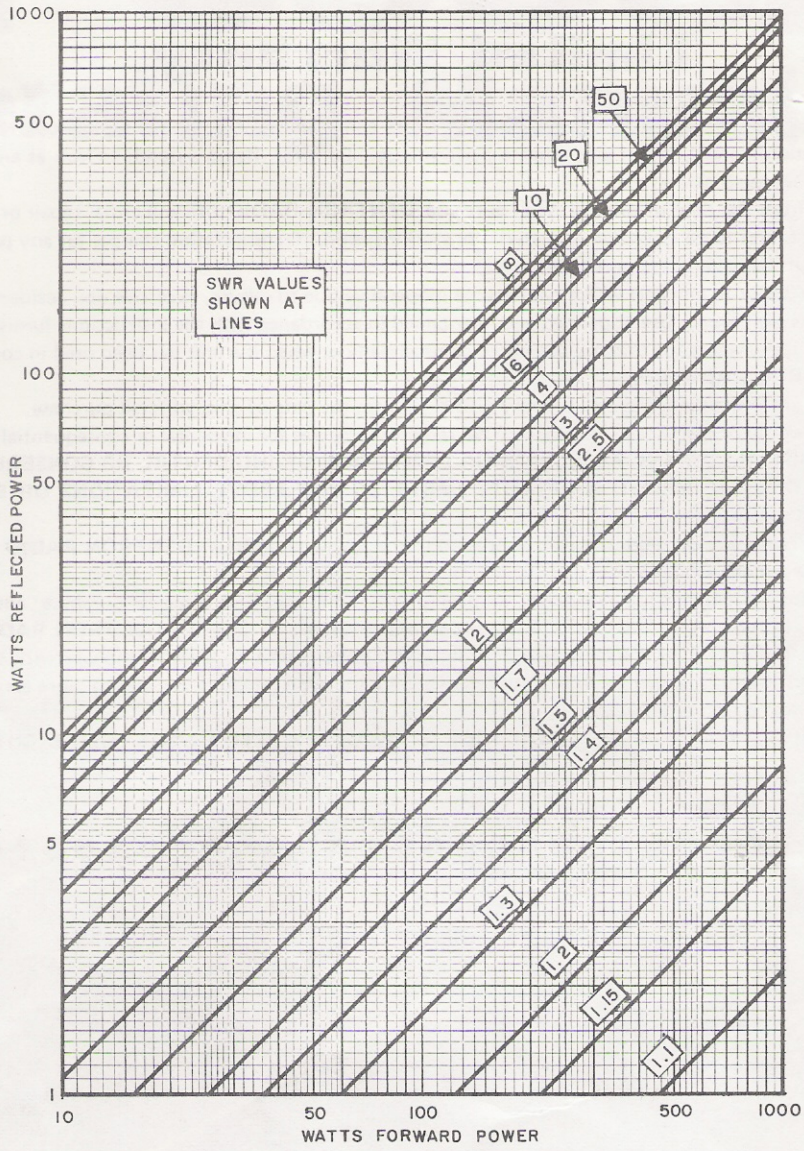
## Parts List

C <sub>1</sub> , C <sub>2</sub>	1.8 Pf
C <sub>3</sub> , C <sub>4</sub>	220 Pf
C <sub>5</sub> , C <sub>11</sub>	.01 Disc
C <sub>12</sub> , C <sub>13</sub>	120 Pf Variable
R <sub>1</sub>	10 ohm ½ W
R <sub>2</sub>	43 ohm ½ W
R <sub>3</sub>	50 K ohm ½ W
R <sub>4</sub> , R <sub>5</sub> , R <sub>6</sub>	100K ohm 1/3 W POT
R <sub>7</sub> , R <sub>8</sub>	15K ohm ½ W
R <sub>9</sub>	50 ohm noninductive
L <sub>1</sub>	Toroid Coil
L <sub>2</sub>	Secondary Coil
L <sub>3</sub>	Primary Coil
L <sub>4</sub>	Ballun
SW1	Push Button Switch
SW2	Antenna Selector Switch
SW3	Inductance Switch
M <sub>1</sub> M <sub>2</sub>	200 uA Meter
F <sub>1</sub>	2A Fast Blow Fuse



<b>Dentron</b>		
SCALE:	APPROVED BY: <i>Cornell Denton</i>	DRAWN BY: J.D.
DATE:		REVISED:
MT-3φφφ-A		
		DRAWING NUMBER

SWR GRAPH For Forward Vs. Reflected Power



## Limited Warranty

DenTron Radio is proud of the quality and workmanship of its communication equipment. If properly installed and operated in accordance with our instruction manual, it will give reliable performance. DenTron Radio extends to you as an owner of a new DenTron Radio Product the warranty set forth below:

For ninety (90) days from the date of original retail purchase, **DENTRON RADIO CO.** will either repair or replace, at its option, free of charge, any part or parts found to be defective in material or workmanship. Transportation charges for any parts submitted for replacement under this warranty must be paid by the purchaser.

This warranty will not apply to any part which has become inoperative due to misuse, excessive use, accident, neglect, improper maintenance, alterations, or unless the unit has been operated and maintained in accordance with the instructions furnished.

This warranty will not apply where the unit has been used commercially or when the unit has been used in conjunction with accessories not manufactured by **DENTRON RADIO CO.**

All implied warranties are limited in duration to ninety (90) days from the date of original retail purchase.

The provisions of this warranty specifically exclude any warranty or remedies for incidental or consequential damages.

**SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU.**

In order to obtain warranty service, send written notification to the following address: **DENTRON RADIO CO.**, Attn: Service Dept., 2100 Enterprise Parkway, Twinsburg, Ohio 44087.

Any written notification should include the model number of the unit, date and place of purchase, and a description of the defective part or condition. Do not return the unit or any parts unless requested to do so by **DENTRON RADIO CO.**

Although the return of the **DENTRON** Warranty Registration Card is not a condition precedent to warranty coverage and performance, the purchaser is encouraged to promptly return the Warranty Registration Card upon purchase in order to more easily facilitate the handling of any future service under these warranty provisions.

**THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.**

**DenTron**

Radio Co., Inc.

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