

Operating Manual JR. MONITOR

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Dentron

Introduction

The JR. MONITOR Antenna Tuner is a sub-compact 300 watt capability antenna tuner of modern design. Its features offer the Amateur, SWL, or CBER the ultimate in operating flexibility. Virtually any type of antenna system can be used, whether it be COAX (50 or 75 ohm), balanced line (twin-lead), or random wire. The JR. MONITOR not only matches any type of feedline to a nominal 50 ohms, but is small enough to go absolutely anywhere from mobile to fixed to portable use. A mobile mounting bracket is included, and the unit is equipped with rubber feet to protect other equipment when stacking the JR. MONITOR. Another unique feature built into the unit is an RF sampling circuit and companion relative power output meter, front panel mounted. Using the relative power output meter greatly aids tuning, especially when an SWR bridge/power meter (such as the DenTron W-2) is unavailable. The frequency range of the JR. MONITOR tuner is 1.8 to 30 MHz, continuous. The JR. MONITOR was designed to be used with any exciter or transceiver producing up to 300 watts output. American-made components and all-metal construction of the unit combine for long life and trouble-free service.



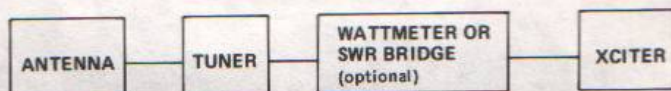
Installation

The most essential component in any system utilizing a tuner is a good earth ground. A cold water pipe near the operating position, chassis ground in operating mobile, or a ground rod as near the station installation as possible are all suitable. Be certain to take your ground lead directly to the JR. MONITOR first, then to your transmitter, and finally to the remainder of your station equipment. If you are using a low pass filter for harmonic attenuation, be certain to place it as close to the input (SO-239 marked Transmitter) of the JR. MONITOR as possible. This will offer the filter device a pure 50 ohm load, and thus improve its efficiency. Using 50 ohm COAX (RG-8 or RG-58 or equivalent), connect your transmitter or transceiver to the transmitter input of the JR. MONITOR. As short a length of cable between units, as possible, is recommended. When using the JR. MONITOR with an SWR bridge/power meter (such as the DenTron W-2), insert the bridge between the tuner and transmitter.

Antennas can be connected to the JR. MONITOR in a variety of ways, depending on type of feedline employed. For COAX fed antennas, connect your antenna to the SO-239 connector marked COAX. For balanced (twin-lead) systems, connect one side of your feedline to either one of the balanced feed terminals, the other side of your feedline to the other balanced feed terminal.

NOTE: WHEN USING BALANCED FEED ANTENNA SYSTEMS, A JUMPER WIRE MUST BE INSTALLED BETWEEN ONE OF THE BALANCED FEED TERMINALS AND THE SINGLE WIRE TERMINAL. IF EXPERIENCING DIFFICULTY WHEN TUNING A RANDOM WIRE FOR 160 METERS, PLACE THE JUMPER ACROSS THE TERMINALS AS ABOVE. CAUTION: REMOVE THIS WIRE FOR OTHER FREQUENCIES ON SINGLE WIRE.

For random length antennas (at least 1/4 wave is recommended at the lowest operating frequency) connect your antenna directly to the single wire terminal.



Mobile Installation

Using the mobile mounting bracket provided by DenTron, mount your JR. MONITOR under your car dashboard (a metal dash will help accomplish suitable grounding, although it is not required). Run a ground lead (number 14 or larger gauge) from the tuner ground lug to the car body. Make this lead as short as possible, and be sure to scrape any paint or finish away from the area where you make your connection.

Any commercially available mobile antenna is suitable, using 50 ohm COAX between your antenna installation and the JR. MONITOR'S COAX output (SO-239). Consult the [ARRL Handbook](#) or [Bill Orr's Radio Handbook](#) for further information on both mobile installations and suppression of ignition noise.

When using a 108" whip antenna in mobile applications, the JR. MONITOR is fully compatible from 40 to 10 Meters.

Operation

NOTE: IF AN SWR/POWER METER BRIDGE IS AVAILABLE, FOLLOW THESE INSTRUCTIONS (DENTRON W-2 WATTMETER RECOMMENDED.)

1. Set "Transmitter Matching" and "Antenna Matching" Controls to "5".
2. Listen on receiver for maximum band noise while turning inductance control for maximum noise.
(A is highest frequency, L is lowest frequency)
3. Feed enough power through the system to get a reading on the SWR bridge or wattmeter in the reflected position.
4. Rotate Inductance Control for a drop in SWR reflected reading.
5. Adjust "Transmitter Matching" and "Antenna Matching" control for minimum SWR.
6. Now apply full power and touch up "Transmitter Matching" control if necessary.

If a W-2, or other Wattmeter/SWR bridge is not available, set both capacitor controls at 5, turn the relative output potentiometer (on the rear panel) fully clockwise, viewed from the rear. Preset your controls according to the chart below.

BASIC CONTROL SETTINGS

(into a 50 ohm resistive load)

BAND & FREQ.	TRANS.	INDUCTANCE	ANT.
160- 1.830	1 / 0	L / L	2.5 / 4
75- 3.8	3 / 5	E / J	4 / 5
40- 7.2	5.5 / 5	C / E	6 / 5
20- 14.2	4 / 5 (5)	B / C (2x)	1 / 6 (5)
15- 21.3	3.5 / 0	B / B	3 / 4
10- 28.6	8.25 / 0	A / A	8 / 5

Insert a small amount of power and peak the antenna and transmitter matching controls according to the relative power output meter. Then try one tap above and below the starting inductance setting for maximum output on the relative power meter. Finally, peak your exciter for maximum output, and re-adjust the relative power output meter potentiometer for a mid-scale reading.

Antennas

SINGLE WIRE FED SYSTEM: For best results DenTron recommends at least a 1/4 wave at the lowest operating frequency. See ARRL Handbook or Bill Orr's Radio Handbook for details. If a 1/4 wave length is impractical, use 1/8 wave as a minimum. In using random length antennas a good ground is most essential. Keep ground leads as short as possible and follow operating instructions for tune up.

BALANCED FEEDLINE: To operate with balanced feeders, connect a jumper wire from the single wire connector on the JR. MONITOR'S rear panel to either of the balanced feed connectors. The feedline then goes to each of the balanced feed terminals. See operating instructions for tune up.

COAX FED ANTENNAS: The JR. MONITOR is capable of matching COAX feedlines between 50 and 75 ohms. Be certain to solder the braid of your COAX cable to the connectors. See ARRL Handbook for details.

