



MANY amateurs working 40 or 80 meters don't have enough room for a half-wave antenna and must settle for a random length of wire. While a random-length job will radiate some RF, the full get-out ability of the transmitter rarely is realized.

Our handy Antenna Tuner can match your transmitter to practically anything, even an innerspring mattress.

The Tuner will handle up to 250 watts of power from 10 to 80 meters. If you use a capacitor with wider spacing between the plates than that of the capacitor specified, the Tuner will handle up to 350 watts. To simplify Tuner adjustment, an RF indicator lamp is included.

Construction. The author built his Tuner in a 4x5x6-inch Minibox. Mount C1 and S1 1¼ inches above the bottom of the box. To mount C1 on the front panel, remove its front mounting foot. After it is mounted, place a spacer or a stack of washers under the rear mounting foot and secure with a screw. C1 must be supported from the rear as it is long and heavy and may be deformed if held only with its shaft bushing.

Every other turn of L1 is indented to make soldering to it easier. Orient L1 so these indents face up and toward the front. L1 is mounted ½ inch from the rear and bottom of the box and is supported by its own leads. One lead is

connected to J1, the other to the feed-through insulator.

S1 is a progressive-shorting type rotary switch assembled from a Centralab PISD steatite section and a P-270 index assembly. Mount S1 so the three contacts closest to the front panel face C1. The wiper contact should face the bottom of the cabinet. Connect the lugs on S1 to C1 and J1 before wiring to L1.

When wiring to the taps on L1, start at the end closest to C1. (It will be almost impossible to avoid shorts if you start at the other end.) Use No. 18 wire and solder to the taps as shown on the schematic, starting at the fifteenth raised tap and working back to the third tap.

If your transmitter's power exceeds 150 watts, use an NE-2J or NE-96 neon lamp instead of an NE-51. Note that you make a connection to only one terminal on NL1. Put rubber feet on the bottom of the tuner.

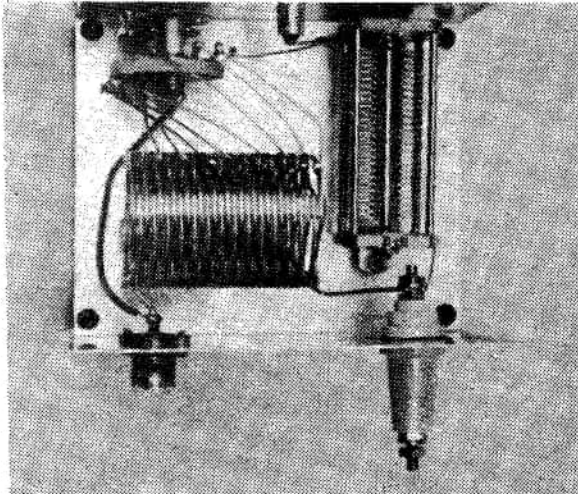
The final detail is labeling the positions on S1 and C1 on the front panel. Mark C1's *minimum* capacity 0 and, mark 0 also at the position of S1 when all contacts are shorted (full counterclockwise). When C1 and L1 are set to 0, the tuner is out of the circuit and the transmitter sees the antenna as if the Tuner didn't exist.

Operation. Connect the output of your transmitter to J1 and your antenna

to the feed-through insulator. (For optimum results the antenna should be at least a multiple of a half-wavelength at the lowest operating frequency.)

Set C1 and L1 to 0 and tune the transmitter in the normal manner. Then adjust S1 for maximum RF output, as indicated by NL1's glow, or for a peak-loading indication on the transmitter. Now adjust C1 for peak output. After C1 is adjusted try the next position on S1; two or three tries usually are required for optimum adjustment. You can try the Tuner out on all bands and mark the settings on the front panel so the Tuner can be reset quickly later.

A word of caution: Occasionally you find the Tuner gives such a solid match the transmitter can be overloaded—



NL1 is mounted so only the glass bulb, not the metal base, is in the grommet. Taps indicated on schematic are the raised turns on the coil.

