

# A SIMPLE PASSIVE LONGWIRE TUNER

For urban & suburban DXers

Mark Connelly \*\* 10 MAY 1985

This article is not one of those "wise guy" technical articles you don't have to be Marconi to understand it. The article, and the product introduced herein, have only one purpose - to help people to log more DX.

DXers living near numerous strong local stations often say, "I just get a mishmash of spurious signals when I connect a longwire to my receiver". The complaint is more frequent with owners of the newer solid-state "ricebox" receivers from the Orient than it is with owners of older US-made "hollow state" Hammarlund, Collins, National, and Hallicrafters receivers. But, don't be mistaken, any receiver can be overloaded and produce spurs, even the \$1000+ military sets.

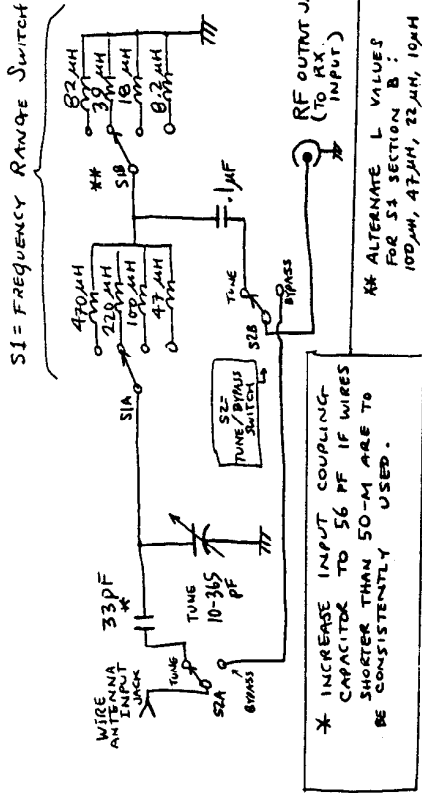
Use of an antenna preselector can substantially reduce, and often eliminate, mixing spurs caused by the overloading of a receiver's front-end by strong local stations intercepted by a random-length longwire aerial.

Antenna tuners, of course, have been discussed before in the DX press; many, however, seem too complicated for the average DXer to build and/or to operate. Many require tweaking so many controls that actual DXing time is diminished. This is especially true of active/regenerative types and of passive "pi-network" types.

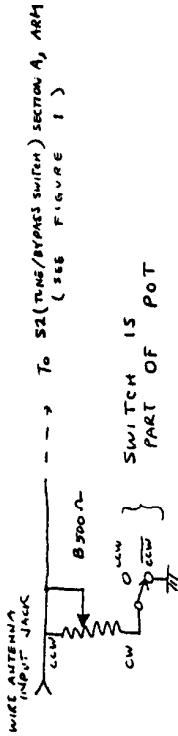
The tuner with which this article is concerned is the utmost in simplicity: it consists of only one tuning capacitor, a 4-position bandswitch (MW is divided into 4 frequency segments), and a switch to disable the tuner (thereby bypassing the antenna directly to the receiver's input). No battery power is required.

Deciding which bandswitch position to use is simple: merely set the tuning capacitor in the middle of its range of motion and try each bandswitch position until the position with the strongest wanted-frequency signal has been determined. With that bandswitch position now selected, it's just a simple matter of peak-tuning the desired station with the tuning capacitor.

The schematic of the simplest form of the tuner is shown below. In Figure 1. If you don't understand schematics, skip over Figure 1. The tuner is used for standard broadcast band (500 - 1800 kHz) DXing with the Inductors shown.



Input-attenuation capability may be desired in the strongest signal areas (e. g. midtown Manhattan). This is easily accomplished by the addition of a 500-ohm linear pot (with built-in switch) (rouser stock # 31C7285) as shown in Figure 2:



The addition of this pot will also help the urban DXer do casual bandcans (with the unit's toggle switch set to bypass the tuning components).

The receiver used must provide a shielded (coaxial-type) antenna input: this is what is found on most "base station" communications receivers. Proper operation with portable radios having ferrite-rod aerials CANNOT BE ASSURED. Shielded cable MUST be used between the tuner's output and the receiver's input.

It should be emphasized that the tuner / preselector is not a "gain" device per se: in an area where overloading isn't a problem, a direct antenna-wire-to-receiver-input connection will give levels equal to, or better than, those achievable with the tuner in-line. "The fact" gain in urban areas, by the elimination of spurs, is the goal of the tuner. New DX horizons should open up for those in the city ("rubble" DXers).

I am offering this Simple Passive Longwire Tuner for \$ 25 (assembled). This basically covers the cost of the parts used. Add \$ 2 for the installation of the optional level pot (if desired) plus \$ 5 for packing / shipping (US) or \$18 for packing / shipping (foreign). Make US cheque or international money order payable to Mark Connelly. Address - 39 William Road - Billerica, MA 01866 USA. When sending in an order please answer the following questions:

- (1) Will an antenna wire longer than 50-metres / 164 - feet be used? [Yes or No]
- (2) What kind of output connector (jack) is desired on the tuner? [Choose one of the following: BNC, RCA phono, SO-239, F, or Motorola]
- (3) What kind of an wire-antenna input connector (jack) is desired on the tuner? [Choose any one of the connectors from question 2 or choose banana jack]

The DXer must provide his/her own shielded cable to go from the tuner's output jack to the receiver's input jack. Ordinary shielded audio cable will suffice, or you can use standard RG-type coax, having an impedance between 45 and 90 ohms. Length of the output cable should be kept to 4 m./ 13-ft. or less.

Overall, there is a wealth of information in the TV and Radio Directory, as well as the other volumes (5 distinct volumes covering newspapers, magazines, TV and radio, feature writers and photographers, and internal publications) in the series. The price: The 1986 edition of the Forging Press of the Nation will be available in September. The TV and Radio Directory volume, alone, is \$115, while the 5 volume set sells for \$250. While these prices may not be in the range of many hobbyist's budget, all is not lost. It is quite possible that the Reference Department of many libraries may have available copies, not to mention the libraries at colleges and universities which offer radio and television courses. Further, many libraries welcome suggestions from patrons regarding books to be added to the library's collection. Further information and a brochure can be obtained from the National Research Bureau, Automated Marketing Systems, Inc., 310 South Michigan Avenue, Chicago, IL 60604.