Tuning a cavity filter

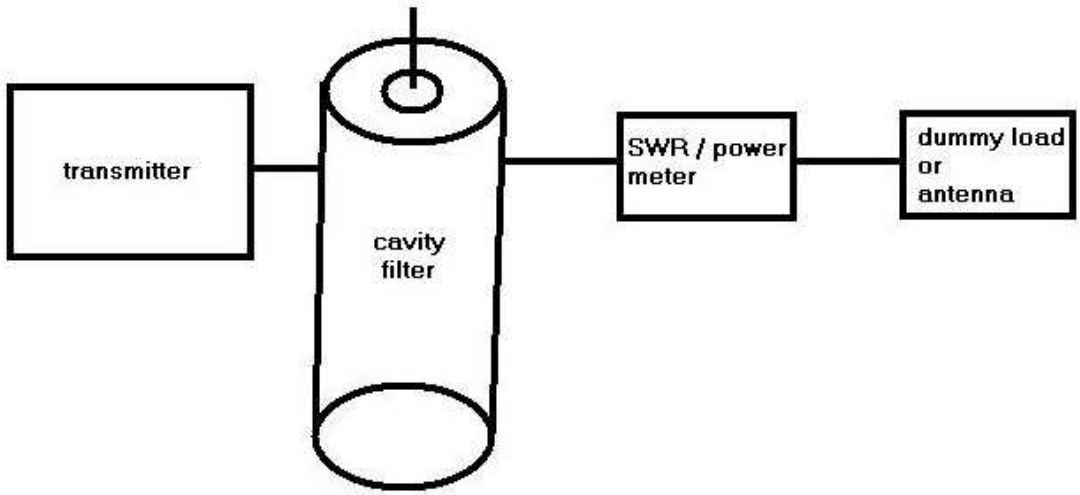
A cavity filter is an electro-mechanical device which filters radio frequency signals by either allowing only the desired signal to pass through it, or rejecting an unwanted signal. The type of filter described below allows only the desired signal to pass through, and is referred to as a band-pass filter.

Wantok Enterprises and International Broadcast Transmitters have supplied a number of used Sinclair Radio Labs cavity filters with a tuning range of 88 to 108 MHz. The purpose of this note is to explain how to tune or retune this specific model of filter. Although other makes and models of filters are somewhat different, the basic procedure is the same.

To tune a cavity filter, you will need an RF power meter. Note that once tuned, the cavity filter, being very narrow band, will only operate on one frequency.

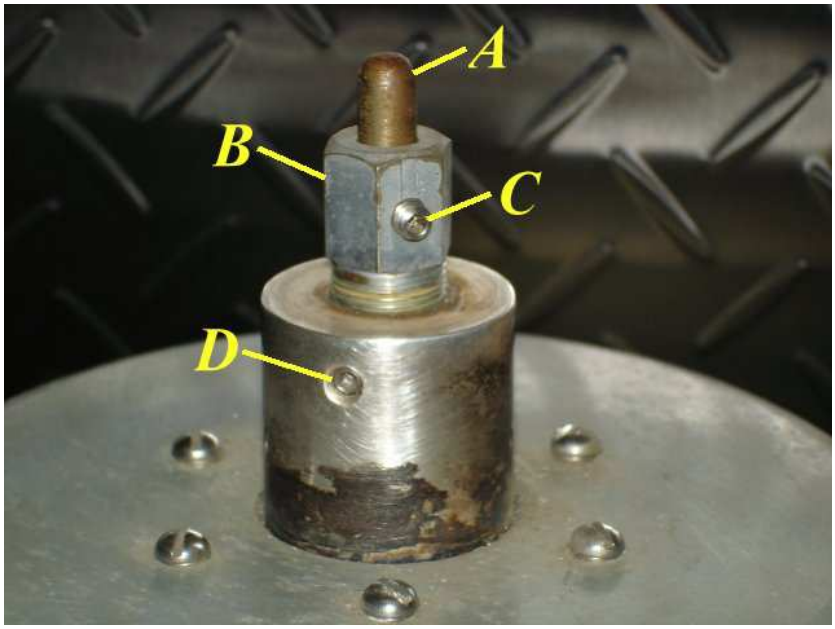
Please follow these instructions carefully:

1. with the transmitter turned off, connect your equipment as shown below:



2. set the SWR / RF power meter to measure forward power

3. as indicated in the picture below, loosen Allen screws C and D (do not let the rod slip inside the collar)



4. with about 2 or 3 cm of rod A showing, turn on the transmitter
5. push and pull the rod A very slowly until maximum power is indicated on the power meter
6. hold the rod in that position and tighten screw C; power should still be indicating on the power meter
7. turn collar B to the left or right to get maximum power indicating on the power meter
8. tighten screw D to lock the collar in place

Once the cavity filter is tuned, treat it very gently as to not misadjust it.

If you have any questions about the procedure, feel free to send me an email.