



SINCLAIR

Sinclair Radio Laboratories Inc.

4 pgs

TUNING INSTRUCTIONS

7" & 10" DIAMETER
STANDARD NOTCH FILTERS

CM-182

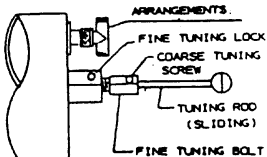
GENERAL INFORMATION

A notch or rejection null is created at the unwanted frequency by tuning the cavity rod. The amount of attenuation is dependent upon the size and position of the coupling loop, which is a factory adjustment. The insertion loss at the frequency(s) to be passed is optimized by varying the length of the shunt stub and by the type of response path used. In some cases a shunt stub is unnecessary and there will be a red cap on the sub terminal. The response path is dependent on the frequency band of the filter and the separation of the reject and pass frequencies. The various response paths are detailed below. These paths are determined at the factory and should not be changed.

When two or more cavities are connected in series, the interconnecting cable lengths are one-quarter or three-quarter wavelengths long. These cables are connected between the response path input-output terminals.

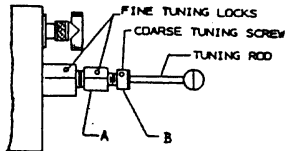
TUNING PROCEDURE

The cavity has a coarse tuning adjustment for large changes in frequency and a fine tuning adjustment for very small changes in frequency. To use the coarse tuning adjustment, unlock the set screw (10-32x1/4" Allen set screw) and push or pull the tuning rod. To use the fine tuning adjustment, lock the coarse tuning screw and loosen the fine tuning lock (10-32x1/4" Allen set screw) then, turn the tuning bolt. (Pushing the rod in or turning the fine tuning bolt in lowers the resonance of the filter.)



An optional fine tuning bolt is available on 7" and 10" diameter filters, i.e. all model numbers ending in R7 and R10. The rotational movement of fine tuning is converted into longitudinal movement of the center probe. This prevents potential abrading of the moveable probe which could occur from very frequency fine tuning. This option should only be ordered when the filter will be frequently tuned. Coarse tuning adjustment as stated on the previous page.

To make fine tuning adjustments, first lock coarse tuning set screw lock. Next loosen both fine tuning locks and rotate fine tuning bolt to tune. Then lock both fine tuning set screws.



A - FINE TUNING BOLT

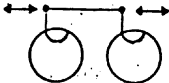
B - NON-ROTATING TUNING BOLT

WIRING DIAGRAM NOTATION

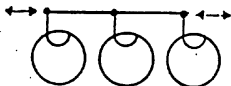
SINGLE CAVITY



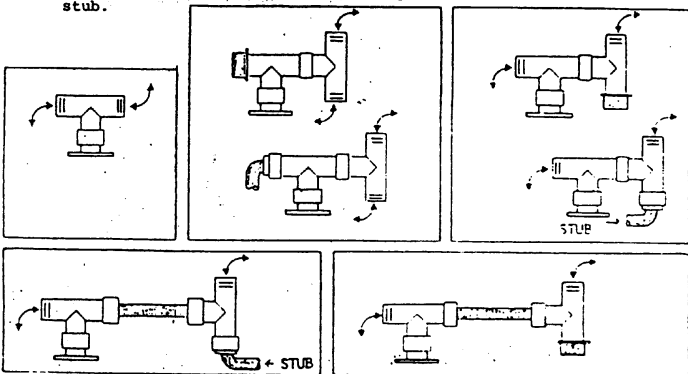
TWO CAVITIES



THREE CAVITIES

RESPONSE PATHS

Depending on the frequency band of the cavity and the separation of the pass and reject frequencies, the cavity can have any of the following response paths with or without a stub.

RETUNING PROCEDURE

For measurement techniques, consult "Field Filter Test Circuit", Pages CI-096 and CI-099.

To retune the cavity to original frequencies, feed the frequency to be rejected across the response path and adjust the cavity tuning probe for minimum signal and lock probe in place. The insertion loss at the pass frequency is set by the shunt stub and requires no adjustment.

To retune the filter to new frequencies and/or separations may require stub, and/or response path, and/or coupling loop changes. Consult factory for information in these cases.

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10/27/95

INSTRUCTIONS FOR CONVERTING CAPACITOR "Q" TYPE BANDPASS/BANDREJECT DUPLEXER

To accomplish this conversion, first check the hole size located at the top of cavity. Hole size must be 1 1/4" to make the conversion from reject to bandpass/bandreject type.

Once you have established that the hole size is 1 1/4", you will need to replace the loop with "Q" type loops. The part number for replacement loop(s) is 350714. You will need one loop for every cavity.

The cable harness also needs to be replaced. Sub-bands are 132-148 MHz and 148-174 MHz. Replacement harness numbers are as follows:

Description	Part #	Frequency Range	# of Cavities	
Cable Assy.	BAD4252*3	132-148 MHz	4	
Cable Assy.	BAD4252*1	148-174 MHz	4	
Cable Assy.	BAD4253*2	132-148 MHz	6	
Cable Assy.	BAD4253*1	148-174 MHz	6	
Loop Assy.	350714 (loop)	132-174 MHz	Dependent on # of cavities	

***Prices listed above are subject to change.**

Follow tuning instructions to retune the duplexer once you have completed the conversion.

Note: Sinclair **does not** supply cable lengths, if you decide to manufacture the harness assembly yourself. Cable lengths are nominally 1/4 wavelength between cavities.

One wavelength, in inches = $\frac{11808 \text{ (velocity factor)}}{\text{Frequency (in MHz)}}$

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