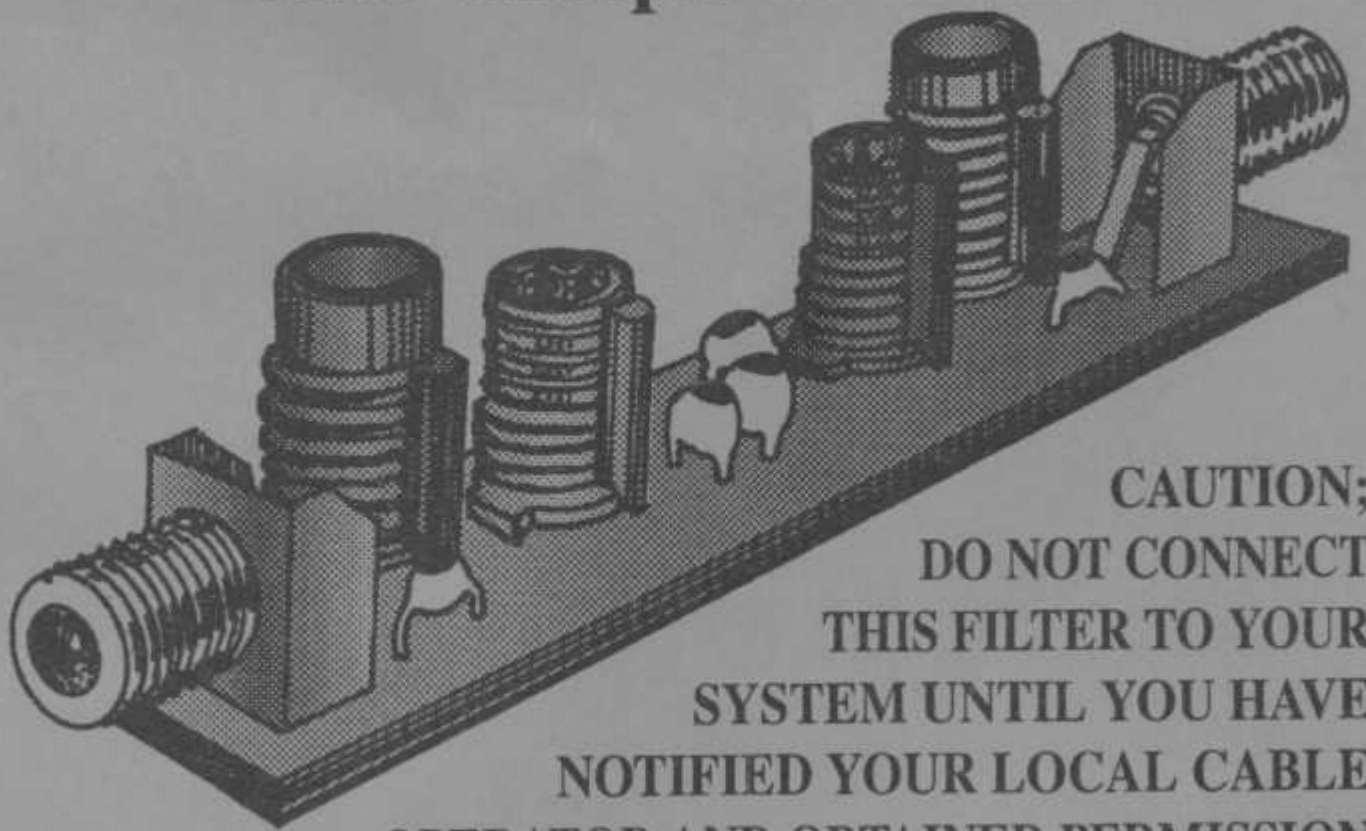


TV NOTCH FILTER

Channels 2 thru 22 and 97 thru 99
Also 'Snooper' & 'Bullet'



CAUTION;
DO NOT CONNECT
THIS FILTER TO YOUR
SYSTEM UNTIL YOU HAVE
NOTIFIED YOUR LOCAL CABLE
OPERATOR AND OBTAINED PERMISSION
IN WRITING TO USE THIS FILTER.

RAINBOW



KITS

NOTCH FILTER THEORY OF OPERATION

The low frequency version (channel 2 to 6 - 55 MHz to 90 MHz) of this kit has 4 poles. Each pole has approximately 11 to 14 dB of attenuation at the resonant frequency. The high frequency version channels 14 to 22 and channels 7 to 13 (100 MHz to 215 MHz) has 3 poles, each pole has approximately 13 to 18 dB of attenuation at the resonant frequency, The band width (notch width) is approximately 300 to 500 KHz for each pole of either filter design. Since each pole may be adjusted independently the notch depth and width are somewhat variable and adjustable. If all poles of the filter are set to the same resonant frequency the overall depth will be 45 to 55 dB and the notch width will be approximately 0.5 MHz. However, if you set each pole of your filter to a different frequency the overall depth will be approximately 15 dB and the notch width will be 1.0 to 1.5 MHz.

If you want to 'trap-out' an unwanted carrier it is normal to adjust all poles to the same frequency. You could 'trap-out' a carrier which has been placed within a TV channel between the color-burst signal and the audio carrier, without any appreciable affect On either of the desired signals. This carrier that you might want to remove normally causes a annoying beeping sound, and causes the picture to be unwatchable. By removing only the unwanted carrier, you can restore a good picture.

BLOCK A CHANNEL

If you want to remove an unwanted channel you would need to use 2 of these filters. One filter would be adjusted to remove the video information and you would use the other filter to remove the audio and color information. Most of the video information is contained within a 600 KHz bandwidth, therefore one filter will provide approximately 40 dB of attenuation with a notch width of about 600 KHz. Typically you will adjust 3 poles of a 4 pole filter or 2 poles of a 3 pole filter for a frequency about 100 KHz above the video frequency of the desired channel and the remaining pole would be adjusted to a frequency approximately 400 KHz higher than the video frequency. (see chart of frequencies for channels 2 to 22).

BULLET

The "BULLET" is a signal used to turn on and off cable services. The signal is used in some systems to remotely activate / deactivate the premium services supplied by the operator without, actually having to go to each location.

SNOOPER

There is a signal inserted in the cable on some systems that is used to detect cable leaks and unauthorized

equipment, to detect this signal you use a device called a snoop.

PARTS LIST

Note: *The capacitors in this kit may be disk or monolithic.*

- () 3ea 2.2 pF cer disk cap (2.2, 2R2, 229)
- () 1ea 3.3 - cer disk cap (3.3, 3R3, 339)
- () 1ea 4.7 pF cer disk (4.7, 479, 4R7)
- () 2ea 5.6c or 5.6pF cer disk cap (5.6, 5P6, 5R6, 569)
- () 2ea 8 or 8.2pF cer disk cap (8, 8.2, 8R2, 829)
- () 2ea 10 pF cer disk (marked 10D, 100, 10)
- () 2ea 12 pF cer disk (marked 12 or 120)
- () 2ea 18 pF cer disk (marked 18 or 180)
- () 2ea 22 pF cer disk (marked 22 or 220)
- () 2ea 27 pF cer disk (marked 27 or 270, 27K)
- () 2ea 33 pF cer disk (marked 33 or 330)
- () 2ea 56K or 56 pF cer disk (marked 56 or 560)
- () 2ea 5 1/2 turn slug tuned coil
(alum core) .16 to .24 uH
- () 3ea 3 1/2 turn slg tuned coil
(alum core) .06 to .09 uH
- () 1ea 2 1/4 turn air coil 5/32" dia.
- () 1ea 1 1/2 turn coil 5/32" dia.
- () 2ea P C mount 'F' connectors
- () 1ea P C board (080-00212A)

PART SELECTIC

PART #	CHANNEL 2-3	CHANNEL 4	CHANNEL 5-6	CHANNEL 7-8	CHANNEL 9-10	CHANNEL 11-13
C1	2.2 pF	2.2 pF	2.2 pF	2.2 pF	2.2 pF	2.2 pF
C2	33 pF	22 pF	18 pF	8 or 8.2pF	8 or 8.2pF	5.6 pF
C3	22 pF	8 or 8.2pF	12 pF	5.6 pF	4.7 pF	4.7 pF
C4	56 pF	56 pF	33 pF	2.2 pF	2.2 pF	2.2 pF
C5	56 pF	56 pF	33 pF	8 or 8.2pF	8 or 8.2pF	5.6 pF
C6	22 pF	8 or 8.2pF	12 pF
C7	33 pF	22 pF	18 pF
C8	2.2 pF	2.2 pF	2.2 pF
L1	3.5 TURN	3.5 TURN	3.5 TURN	3.5 TURN	3.5 TURN	3.5 TURN
L2	5.5 TURN	5.5 TURN	5.5 TURN	3.5 TURN	3.5 TURN	3.5 TURN
L3	5.5 TURN	5.5 TURN	5.5 TURN	2 1/4 A	2 1/4 A	1 1/2 A
L4	3.5 TURN	3.5 TURN	3.5 TURN	3.5 TURN	3.5 TURN	3.5 TURN
J1&J2	INSERT AND SOLDER J1 & J2 IN PRINTED					

NOTE: L3...Some coils in L3 location are marked 2 1/4 A or 5/32" dia. made with enameled wire.

- All capacitors and coils must be inserted into printed circ with very short leads.
- Insert all parts on fiber side and solder on silver side.
- * On some TV set cable system combinations, this value ma

ALIGNMENT

Alignment procedure for removing an unwanted carrier on channels 2 to 6:

1. Adjust L1 so the sound starts to clear.
2. Adjust L4 for the best sound the picture should start to clear also.
3. Adjust L2 for the best picture and sound.
4. Adjust L3 for the best picture and sound.
5. Repeat steps 1 to 4 several times, the adjustments are critical and 'touchy' be patient and be careful.

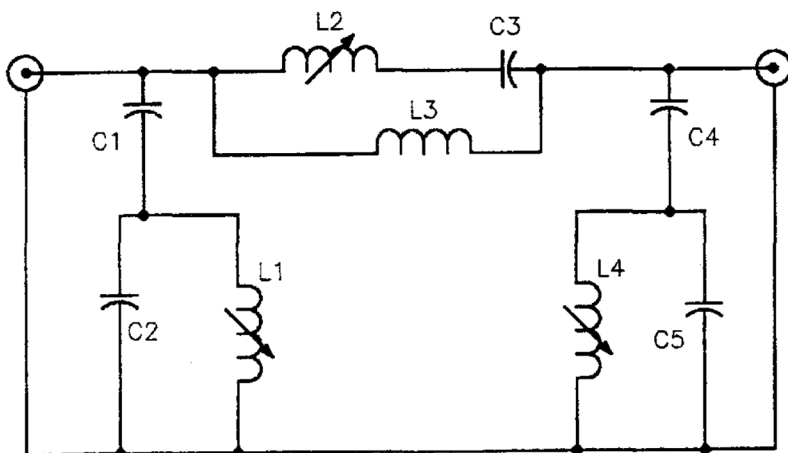
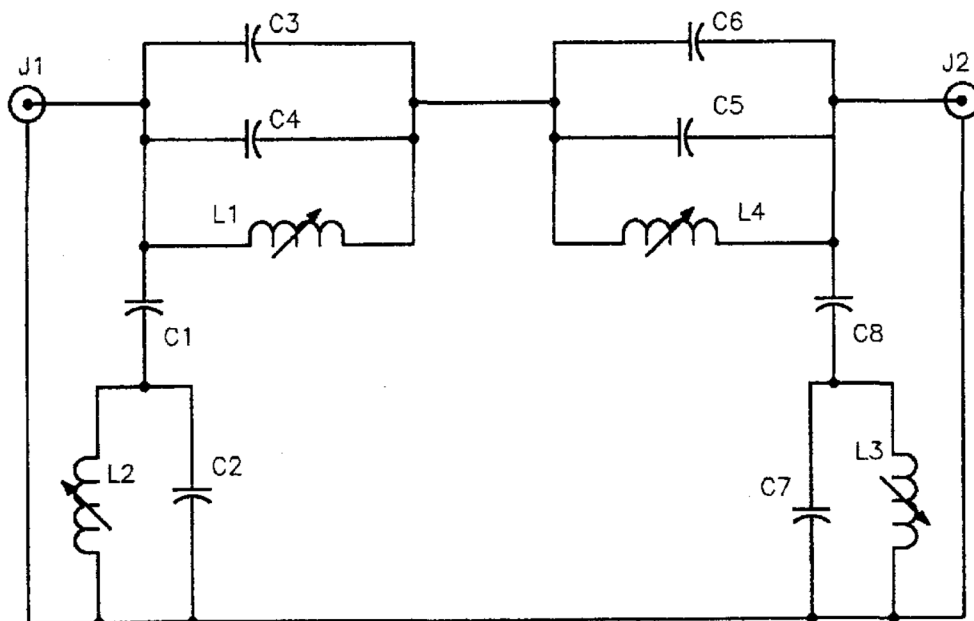
Alignment procedure for removing an unwanted carrier on channel 7 to 22 and 97 to 99:

1. Adjust L1 so the sound starts to clear.
2. Adjust L4 for the best sound and picture.
3. Adjust L2 for the best picture and sound.
4. Repeat steps 1 to 3 several times, the adjustments are critical and 'touchy' be patient and careful.

Alignment procedure for 'Snooper' and 'Bullet'

The 'Bullet and Snooper' are best aligned with a sweep generator or spectrum analyzer. You must know the exact frequency that is used on your system, and the filter must be calibrated to that frequency.

SCHEMATICS



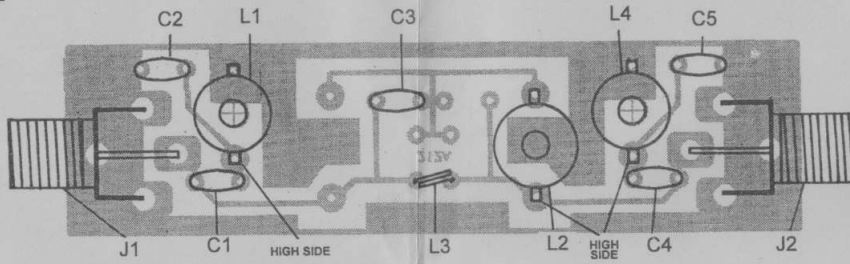
**CHART OF FREQUENCIES
4 - POLE FILTER FREQUENCIES**

Channel	Video	Color	Audio
2	55.25	58.83	59.75
3	61.25	64.83	65.75
4	67.25	70.83	71.25
5	77.25	80.83	81.75
6	83.25	86.83	87.75
Bullet	103 MHz to 105.5 MHz		
Snooper	107.997 MHz		

**CHART OF FREQUENCIES
3 - POLE FILTER FREQUENCIES**

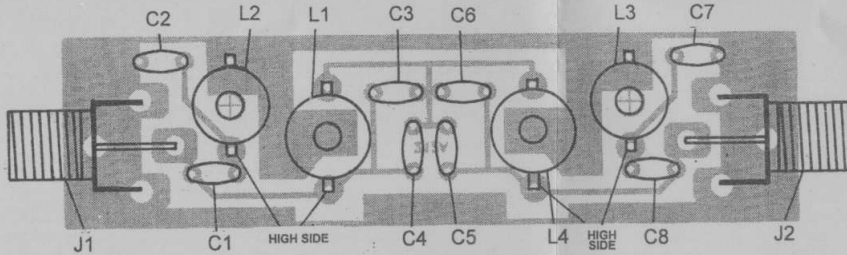
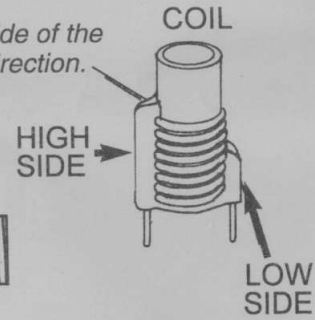
Channel	Video	Color	Audio
14	121.25	124.83	125.75
15	127.25	130.83	131.75
16	133.25	136.83	137.75
17	139.25	142.83	143.75
18	145.25	148.83	149.75
19	151.25	154.83	155.25
20	157.25	160.83	161.75
21	163.25	166.83	167.75
22	169.25	172.83	173.75
7	175.25	178.83	179.75
8	181.25	184.83	185.75
9	187.25	190.83	191.75
10	193.25	196.83	197.75
11	199.25	202.83	203.75
12	205.25	208.83	209.75
13	211.25	214.83	215.75

DF-222



CHANNEL 7 THRU 22, 97, 98, 99
ALSO SNOOPER & BULLET

NOTE;
Always have the high side of the coils facing the same direction.



CHANNELS 2 THRU 6

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