

# Electronics Workshop – May 5 & 19, 2018

## Time & Location:

10:00 AM

Mike Payne's, 892 King Rd, Winlock, WA

## Topics:

1. Triplexer and Band Pass Filter Construction

## Notes:

April 26, 2018 meeting rescheduled to Saturday, May 5 at Mike Payne's. It will be a construction workshop.

Construction will continue on Saturday, May 19.

## Reference:

Triplexer/Band Pass Filters:

1. "HF Yagi Triplexer Especially for ARRL Field Day," Gary Gordon, K6KV, QST June 2010, pp. 37-40
2. "The NVARC 'Ugly' Filter Project," <https://www.n1nc.org/Filters/>

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## Bandpass Filter Cases

3-3/8" x 5-1/2" x 5-7/8", 0.03" sheet metal thickness

**10-Meter Bandpass Filter**, <http://www.n1nc.org/Filters/10meter/>,  
<http://www.n1nc.org/Filters/10meter/Schematic>  
<http://www.n1nc.org/Filters/10meter/Chassis>

Coil #	Coil Form			Coil			
	Pipe	OD	Length	Wire	Turns	Coil Length	Inductance
L1, L5	1/2" Sched 40 PVC	0.840"	2"	36", #14 solid, insulated	9-3/4	1.00"	1.64 $\mu$ H
L3	1/2" Sched 40 PVC	0.840"	2"	36", #14 solid, insulated	9	1.00"	1.41 $\mu$ H
L2, L4	Thin wall PVC	0.620"	1-1/4"	12", #14 solid, insulated	3-1/2	0.40"	0.23 $\mu$ H

C1, C2, C3, C4, C5, C6 – 33 pf, 3 KV, Panasonic P/N ECC-A3F330JGE

3 – 1-1/4", 4-40 brass machine screws

10 – 1/4", 4-40 brass machine screws

19 – 4-40 brass nuts

5 – 4-40 brass washers

2 – ground lugs

2 – SO-239 UHF jacks & mounting machine screws/nuts

**15-Meter Bandpass Filter**, <http://www.n1nc.org/Filters/15meter/>  
<http://www.n1nc.org/Filters/15meter/Schematic>  
<http://www.n1nc.org/Filters/15meter/Chassis>  
<http://www.n1nc.org/Filters/Shield>

Coil #	Coil Form			Coil			
	Pipe	OD	Length	Wire	Turns	Coil Length	Inductance
L1, L2, L3	3/4" Sched 40 PVC		2"	54", #14 solid, insulated	11-1/2	1.10"	2.65 $\mu$ H

C1, C5 – 2 x 12 pf, 3 KV, Panasonic P/N ECC-A3F120JGE in parallel (24 pf each)

C2, C4 – 2 x 100 pf, 1 KV, Panasonic P/N ECC-A3A101JGE and

1 x 12 pf, 1 KV, Panasonic P/N ECC-A3A120JGE in parallel (212 pf each)

C3 – 1 x 12 pf, 3 KV, Panasonic P/N ECC-A3F120JGE and

1 x 15 pf, 3 KV, Panasonic P/N ECC-A3F150JGE in parallel (27 pf total)

3 – 1-1/4", 4-40 brass machine screws

16 – 1/4", 4-40 brass machine screws

22 – 4-40 brass nuts

5 – 4-40 brass washers

2 – ground lugs

2 – SO-239 UHF jacks & mounting machine screws/nuts

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**20-Meter Bandpass Filter**, <http://www.n1nc.org/Filters/20meter/>  
<http://www.n1nc.org/Filters/20meter/Schematic>  
<http://www.n1nc.org/Filters/20meter/Chassis>  
<http://www.n1nc.org/Filters/Shield>

Coil #	Coil Form			Coil			
	Pipe	OD	Length	Wire	Turns	Coil Length	Inductance
L1, L2, L3	3/4" Sched 40 PVC		2-1/4"	60", #14 solid, insulated	14	1.40"	3.17 $\mu$ H

C1, C5 – 1 x 47 pf, 3 KV, Panasonic P/N ECC-A3F470JGE  
C2, C4 – 2 x 150 pf, 1 KV, Panasonic P/N ECC-A3A151JGE and  
1 x 18 pf, 1 KV, Panasonic P/N ECC-A3A180JGE in parallel (318 pf each)  
C3 – 1 x 22 pf, 3 KV, Panasonic P/N ECC-A3F220JGE and  
1 x 33 pf, 3 KV, Panasonic P/N ECC-A3F330JGE in parallel (55 pf total)  
3 – 1-1/2", 4-40 brass machine screws  
19 – 1/4", 4-40 brass machine screws  
23 – 4-40 brass nuts  
5 – 4-40 brass washers  
2 – ground lugs  
2 – SO-239 UHF jacks & mounting machine screws/nuts

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**Triplexer**, QST, June 2010, pg 37-40

Case: Hammond 1590E, Digi-Key P/N HM155, 7.402" x 4.724" x 3.296"

Coil #	Coil Form			Coil			
	OD	ID	Length	Wire	Turns	Pitch	Inductance
L1 (20M)	1"	3/4"	2"	#20 solid, insulated	19-1/2	17-1/2 TPI	8.0 $\mu$ H
L2 (15M)	1"	3/4"	2"	#18 solid, insulated	13-1/2	13 TPI	5.3 $\mu$ H
L3 (10M)	1"	3/4"	2"	#16 solid, insulated	12	11 TPI	4.0 $\mu$ H

Pipe: 1" polycarbonate (LEXAN), [https://www.tapplastics.com/product/plastics/plastic\\_rods\\_tubes\\_shapes/polycarbonate\\_tubes/276](https://www.tapplastics.com/product/plastics/plastic_rods_tubes_shapes/polycarbonate_tubes/276)

C1 – 16 pF, 2 KV+, variable capacitor (20M)  
C2 – 11 pF, 2 KV+, variable Capacitor (15M)  
C3 – 8 pF, 2 KV+, variable capacitor (10M)  
Example capacitor: RF Parts 41  $\mu$ F P/N 48APL30, 5 to 30 pF, 2 KV  
4 – SO-239 UHF jacks & mounting machine screws/nuts