The Hellgate Static

September 2023

Hellgate Amateur Radio Club
P.O. Box 3811, Missoula, MT 59806-3811
Web: www.w7px.org

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Aug Testing Results
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HARC Inventory: Items For Sale
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Sep HARC Calendar
ARRL Simulated Emergency Test
Constitution & By-Laws (Finished Draft) – Voting will take place at the 9 October Meeting.

Coming Events:

Sep	04	Labor Day
Sep	09	Fox Hunt – Multiple events – 11 to 6
Sep	11	Testing, Meeting
Oct	07	ARRL Simulated Emergency Test
Oct	09	Columbus Day
Oct	09	Testing, Meeting
Oct	31	Halloween

Officers:

President: NZ7S
Vice-President: K7MTD
Treasurer: W7XT
Secretary: secretary@k7px.org

Positions:

Emergency Coordinator: trustee@w7px.org
QSLs, Awards: trustee@w7px.org
Webmaster: webmaster@w7px.org
Asst Webmaster: editor@w7px.org
License Exams Contact VE:
harc.ve.testing@gmail.com
Static Editor: editor@w7px.org

Repeater Operations:

K7MTD (Chair)
K0SN Dec 2021 for (22/23)
K7QA Dec 2022 for (23/24)
N7PAS Dec 2022 for (23 - 1Yr)
KG7WYQ Dec 2022 for (23/24)

C&BL – Board + N7PAS and W7RPG

Buy-Sell Operations hfc@w7px.org
Members: W7XT, K0SN, K7QA.

HARC September Meeting Program:

Show and demonstration of home brew air cannon by K7MTD.

We are having in-person monthly meetings and live in person electronic testing. The testing and meeting are on the 2nd Monday of each Month

Meetings will be held at The Church of Jesus Christ of Latter Day Saints, 3026 South Avenue West, across the street from Big Sky High School. Use the North entrance as all others will be locked.

Testing will begin at 5:30PM, and end at 6:30PM.

Meeting area will be set up between 6:30-7:00PM and meeting will begin at 7:00PM (Program & Business).

Published: 31 Aug 2023 @3:30 PM by N7PAS

14 Aug 2023 Exam Testing Results

Congratulations to:

1. Graeme Brown of Polson who passed his General exam. His call sign is KK7NOL.
2. Adam Davis of Missoula who passed his General exam. His call sign is KK7NOM.

14 Aug 2023 HARC Meeting Minutes

1. **Attendance**: Jerry Ehli N7GE, Niles Leothold KK7JYA, Adam Davis KK7NOM, Joe Geldrick AG7FH, Tom Hellem K0SN, Tom McGinley K7QA, Aaron Nelson N7BIO, Bill Reese KJ7PCR, Mike Leary K7MSO, Chad Moore K7IXF, Sandra Pond KF7GZR, Dean Pond N7DLP, Jerri Shuey N7JGS, Larry Stipe K7GIS, David Herzberg K7MTD, Eric Sedgwick NZ7S, Dick Walton W7XT, Paul Shuey N7PAS
   Visitors: Dean McCollom KJ6CQC, Tom Brownlee AF2D, Graeme Brown KK7NOL
   NOTE: 18 Members present. Thank you to all that attended.
2. **Last meeting minutes, May:** Motion to approve May minutes: 1St _??___ 2nd N7BIO
   Discussion _None_____ Vote: Passed
   Last meeting minutes, Jun: Motion to approve May minutes: 1St N7DLP 2nd KJ7PCR
   Discussion _Minutes Read, no discussion_____ Vote: Passed
   Last meeting minutes, Jul: Motion to approve May minutes: 1St _??___ 2nd K7QA
   Discussion _None_____ Vote: Passed
3. **Treasurer's report** – recap of funds location,
   No income or expenses recorded, E.J.-interest reported.
   Motion to approve report: 1St __K7MTD____ 2nd _K0SN_____ Vote: Passed
4. **Repeater Committee** - Nothing to report**.**
5. **HF Committee Report** - Nothing to report**.**
6. **Discussion List**
   a. Voting on Constitution and by-Laws tabled for committee evaluation of new input.
   b. HARC Saturday net on 147.04 MHz repeater at 9:00AM discussed.
7. **Net Control Operators**

Aug	02	N7PAS	Sep	06	N7PAS
Aug	09	NZ7S	Sep	13	N7GE
Aug	16	K7MTD	Sep	20	K7MSO
Aug	23	W7RPG	Sep	27	NZ7S
Aug	30	N7JGS	___	__	_____

8. Good & Welfare: GMRS and GPS radio usage mentioned.
   Meeting adjourned at1928 Hours (7:28 PM). Minutes by K7MSO & N7PAS

Program: Dave K7MTD lead a discussion about Fox Hunt Field Day on 9 Sep 2023.
Incentive's (TBD) to be presented to winner's.
1.Group get together at Fort Missoula Park. See what 3 words https://w3w.co/paused.inner.create at 10-11am to help with radio's, antenna's, attenuator's, computer programming if you bring your cable, etc.
2.Short localized hunt, for training, from 11-12 - no awards for the training event.
3.Lunch (bring your own) and social from 12-1:30.
4.Large area, city wide, fox hunt from 1:30-3:00 – awards will be given for 1st, 2nd, and 3rd place only.
5.Social and award's for best time's from 3:00pm -??(done).
All are welcome. Invite your friends and come have a fun day. See Flyer Pg 11

Note **Please Send Information for Static to editor@w7px.org**
in LibreOffice or Microsoft Office formats only. Thank You

HARC INVENTORY -- FOR SALE

Line	ITEM	MAKE	MODEL	CONDITION	VALUE	STORED	REMARKS
1	Computer	Dell	Latitude	Fair	100	N7GE	
2	Pow Supply 220-225mhz	Mirage	C106G	Good	25	N7GE	
3	Radio-Hand Held 2 met.	Realistic	HTX 202	Good	50	N7GE	
4	Radio--2 meter	Yaesu	FT-2500M	Fair	$100	N7GE	
5	Portable Repeater		TM-241X2	?		N7GE	
6	Triband Beam	Hy-Gain		Few Missing parts	200	K0SN	
7	Tuner	Signal Corps	BC939B	Parts only	25	K0SN	parts only, no cabinet
8	Speaker + Power Supply	Drake	MS-4 + AC4	Not tested	75	K7QA	needs upgrade
9	Reflected Pwr Mtr	Heathkit	HM-15	Works		K7QA	
10	Mobile Tuning Mtr	Heathkit	PM-2	Untested		K7QA	
11	Trap Vertical	Hygain	14AVQ	Clean, untested	150	K7QA	
12	Transceiver-2 mtr	Kenwood	TR-7400A	Works	70	K7QA	
13	2 Mtr HH Transceiver	Realistic	HTX-202	Error Code	25	K7QA	
14	Speaker w/volume control	Yaesu		Untested	50	K7QA	
15	1993 ARRL Handbook			like new	free	K7QA	
16	Handbooks	ARRL	1950-1980	OK	Free	KGVO	
17	Vintage Mic	Astatic	JT-30	worn, untested	50	KGVO	Ebay sales $50-300
18	13.8V, 12A power supply	Astron	RS12A	works	30	KGVO	
19	C&R checker	CDE		untested	30	KGVO	
21	Rotor	CDE?		untested	50	KGVO	w/ control head
22	Transceiver	Collins	RT-91ARC-2	untested	100	KGVO	Aircraft Military
23	Transverter Interface	Down E. Micro		untested	offer	KGVO	
24	Low pass Filter	Drake	TV-3300	untested	20	KGVO	
25	Receiver	Hallicrafters	SX-100	fair	150	KGVO	
26	Receiver	Hallicrafters	SX28	very good	900	K0SN	
27	Receiver	Hallicrafters	SX-62B	untested, rough	75	KGVO	no cabinet top
28	Vintage Speaker	Hallicrafters	PM 23	Nice, untested	150	KGVO	
29	Vintage Speaker	Hammarlund	S-100	Nice, untested	60	KGVO	
30	AC Power Supply	Heath Kit	HP-23-A	works		KGVO	for the HW-101
31	SSB Transceiver	Heath Kit	HW-101	needs repair		KGVO	Ebay $90-300
32	HF Xcvr + Power Supply	Heathkit		untested	150	KGVO	
33	Oscilloscope	Heathkit	IO-4105	untested	30	KGVO	
34	Power/SWR Meter	Heathkit	HM15	untested		KGVO	
35	Vertical antenna		Dipole 80	?		NOAA	
36	Receiver	Heathkit	HR-10	untested, rough	offer	KGVO	Ebay sales $100-300
37	SSB Adapter	Heathkit		untested	40	KGVO	
38	Transceiver	Heathkit	SB102	good	250	KGVO	W/ matching spkr. & p.s.
39	Test Oscillator	HP	650A	untested	offer	KGVO	
40	Rotor Control	Hygain	DCU-1	untested	200	KGVO	
41	VHF Mobile Transceiver	Icom	IC-25A	fair, untested	30	KGVO	
42	Transceiver	Kenwood	TS-450S	Excellent	400	KGVO	
43	2M FM Transceiver	Kenwood	TR7400A	no output	10	KGVO	
44	HF Transceiver +Man	Kenwood	TS-520	non-working	100	KGVO	

45	Transceiver	Kenwood	TS-940	Needs Repair	250	KGVO	No output on CW, others
46	Transmitter	Meissner	9-1160 (tube)	good		KGVO	was in use
47	Voice Keyer	MFJ	MFJ-432	untested	30	KGVO	
48	Fwd/Refl. pwr meter	Midland	23-126	untested	10	KGVO	
49	2 mtr, 30 Watt amp	Mirage	B23	untested	25	KGVO	
50	20-40M QRP Transceiver	Oak Hills	QRP Classic	untested	30	KGVO	
51	13.8V, 10A P.S.	Pyramid	PS15-KX	Nice, untested	30	KGVO	
52	2 mtr mobile Xcvr	Radio Shack	HTX-242	untested	40	KGVO	
53	25A switching P.S.	Radio Shack		untested	40	KGVO	
54	Field str/SWR meter	Radio Shack		untested	10	KGVO	
55	VHF/UHF/FM amp	Radio Shack		untested	20	KGVO	
56	Gen. Coverage Rvr.	Realistic	DX302	untested	125	KGVO	Ebay sales $80-350
57	12V DC p.s.	Samlex		untested	25	KGVO	
58	Receiver	Signal Corps	R-392/URR	fair	300	KGVO	Stromberg Carlson
59	VTVM	Simpson	311	untested	25	KGVO	
60	Oscilloscope	Telequipment		untested	20	KGVO	
61	Var. power resistors	Tru-ohm, etc		untested	10	KGVO	box of ~20
62	Scanner	Uniden	BC9000	untested	50	KGVO	
63	BUG KEY	unknown		fair		KGVO	
64	12V DC Backup Power	West Mtn	PG40S	good, untested	25	KGVO	
65	Radio-Sound card interface	West Mtn	Riblaster Plus			KGVO	
66	HF Transceiver	Yaesu	FT-840	fair, works	300	KGVO	
67	Speaker	Yaesu	SP-8	Good, untested	125	KGVO	
68	VHF FM Transceiver	Yaesu	FT720RU	untested	25	KGVO	
69	VHF Transceiver	Yaesu	1500M	untested	75	KGVO	
70	Many electronic parts for amps, tuners, other projects, too numerous to list.				offer	KGVO	some free, door prizes
71	Misc. panel mount meters			untested,	40	KGVO	2 boxes full
72	Patch cords w/ RCA male			good	10	KGVO	box of ~20
73	Peter Dahl 10 HY @ 1 A		new	new		KGVO	
74	Peter Dahl 40 HY @ .6 A		new	new		KGVO	
75	Peter Dahl 9 HY @ 1.5A		NEW	NEW	200	KGVO	66 pounds - pick up only
76	Peter Dahl Swgng Choke		new	new		KGVO	
77	Antenna Tuner	Icom	AH-4			NZ7S	
78	Voice Synthesizer	Icom	UT-102			NZ7S	
79	Transceivers, qty.2	Kenwood	220-225 mhz.	?		NZ7S	
80	Antenna Tuner + man	MFJ	MFJ-934			NZ7S	
81	RTTY CW	MFJ		?		NZ7S	
82	Wattmeter/SWR	Coax. Dynam.	81021	com	200	KGVO	

Contact K0SN or W7XT for further information

Contact HFC@w7px.org for further information (note this is not yet set up)

Electronics 101.7: Filters

Filtering complex signals to remove ranges of frequencies

Dave Astels

daveastels.com

Dave's career started in the 8-bit days, with the Z80 and 6502, and he's been working with computers ever since. Check him out at: **daveastels.com** and **learn.adafruit.com**

Last month we looked at oscillators, which make signals. This month we'll look at filters, which manipulate them.

A filter does just what the name implies: it allows some frequencies to pass through, while blocking (i.e. filtering out) others. There are four basic types of filters:

Low-pass: allows frequencies lower than some threshold value to pass through, blocking higher ones. See **Figure 1**.

High-pass: allows frequencies higher than some threshold value to pass through, blocking lower ones. See **Figure 2**.

Band-pass: allows frequencies within some range to pass through, blocking lower and higher ones. See **Figure 3**.

Notch: allows frequencies below and above some range to pass through, blocking those in the range. See **Figure 4**.

The frequency at which the response curve of a filter changes is called the cutoff. Band-pass and notch filters have two cutoffs.

Passing a simple, single-frequency sine wave through a filter will result in it being passed through to some extent (including not at all), depending on its frequency and the cutoff frequency of the filter.

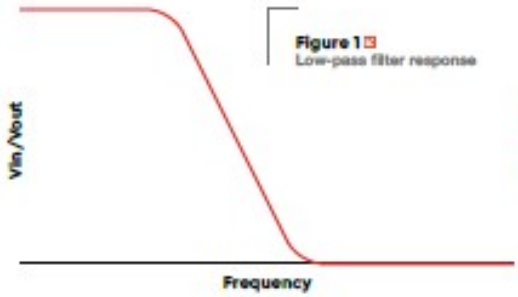


Figure 1 Low-pass filter response

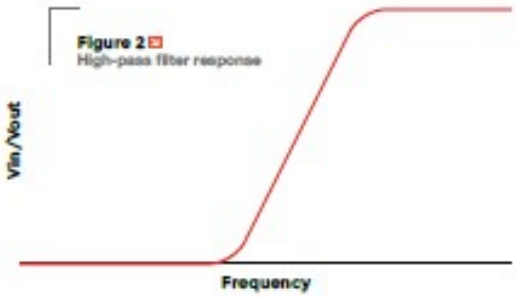


Figure 2 High-pass filter response

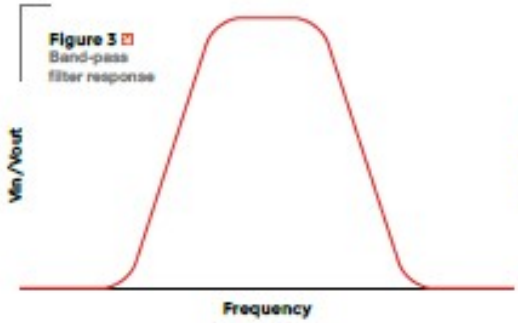


Figure 3 Band-pass filter response

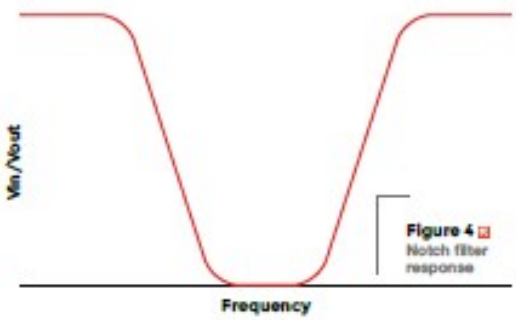


Figure 4 Notch filter response

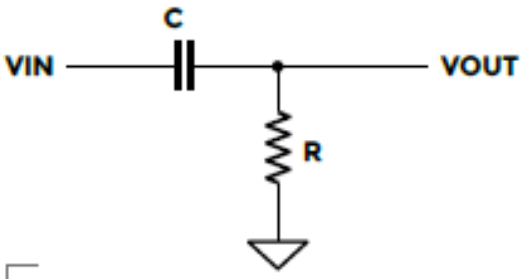


Figure 5
RC low-pass filter

FREQUENCY FILTRATION

Recall the discussion of capacitors in issue 10. One key capability is that they can pass varying signals while blocking steady signals. Let's dig a little deeper.

Capacitors have what is called reactance. This is sort of like resistance, but is frequency dependent. Specifically, a capacitor's reactance, X, is equal to $1/\omega C$, where ω is the frequency. From this we can see that this effective resistance is inversely proportional to both the frequency of the signal and the value of the capacitor. So, for a fixed-value capacitor, the effective resistance goes down as the frequency goes up, and the reverse. It also means that capacitors with smaller values have a lower reactance at higher frequencies.

This makes sense intuitively. Smaller capacitors hold less charge, and can be (dis)charged faster. That means that higher-frequency signals have time to more completely push/pull electrons through the capacitor. A larger capacitor requires more time to do that, thus lets a lower-frequency signal through more easily; a high-frequency signal does not have time to have as much of an effect on the charge in the capacitor.

> **Capacitors have what is called reactance.** This is like resistance, but is frequency dependent

How is this useful? Recall in issue 9 when we talked about resistors and voltage dividers? Let's make one, but this time using a capacitor in place of one of the resistors. See **Figure 5**. As the frequency of Vin increases, the effective resistance of C goes down. Conversely, as the frequency goes down, the effective resistance of C goes up. The lower the effective resistance of C, the lower the amplitude of Vout compared to Vin. This circuit is a frequency-dependent voltage divider. The higher the frequency, the smaller the signal at Vout; the lower the frequency, the bigger the signal at Vout. What's interesting is what happens when the effective resistance (i.e. reactance) of C is about the same as the resistance of R. Look at **Figure 1**. You see where the curve drops? The midpoint of the drop is around where X = R. The frequency is defined by the capacitor (since R is fixed) and equals 1/RC. There's that RC time constant again!

Given the above, how would we make a high-pass filter? We'd want the resistance to ground to be the small side of the divider at low frequencies. At high frequencies it should be the large side. This is the opposite of what we need in a low-pass filter and all we need to do is switch the resistor and capacitor. See **Figure 6**.

We can make band-pass and notch filters by combining low-pass and high-pass filters with appropriate cutoff frequencies.

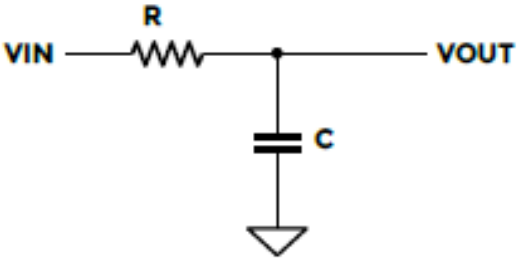


Figure 6
RC high-pass filter

ADDING INDUCTORS

There's a problem with RC filters: the cutoff isn't all that sudden. It's pretty gradual, actually. For simple low- and high-pass filters, that might not be too bad. But for an equaliser (which is a series of adjacent band-pass filters) you want fairly narrow, sharp bands. RC filters aren't up to it. However, we can pull in another component we've seen: inductors. Inductors are generally labelled L in circuits, so these filters are called LC filters.

We won't go into much detail because, as we said in issue 11, this type of inductor isn't overly common any more. In fact, LC filters are typically limited to RF and some audio circuits. The advantage of LC filters is that their response curves can be very steep. This lets them excel at selecting a small range of frequencies. **Figure 7** (overleaf) shows a simple LC band-pass filter. As before, the parallel LC circuit forms a voltage divider with R. Recall that inductors and capacitors work in a somewhat opposite way. Because of this, the parallel combination has a resonant frequency given by $f = 1/(2\pi\sqrt{(LC)})$. At that frequency the effective resistance of the →

YOU'LL NEED

- **Solderless breadboard**
- **1 × 100 kΩ potentiometer** (adjustable resistor)
- **1 × 10 nF capacitor**
- **A source of signals** (this could be an oscillator, a signal generator, or a music player)
- **Connectors and wiring** (to connect the signal source to the breadboard)
- **Amplified speakers** (to listen to the signal, or an oscilloscope to look at it)
- **To experiment further, a variety of capacitors and resistors will be needed**

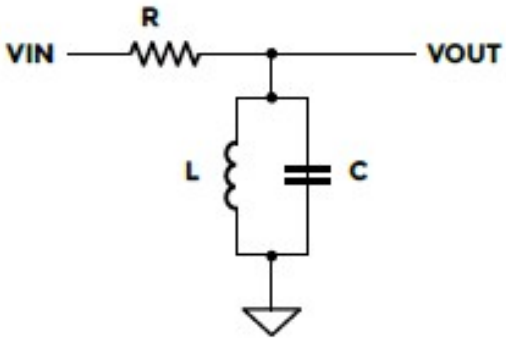


Figure 7
An LC band-pass filter

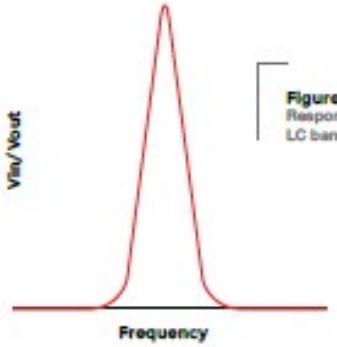


Figure 8
Response curve of an LC band-pass filter

LC combination goes to infinity, dropping to 0 very quickly on either side. See **Figure 8** for the response curve.

COMPLEX WAVES

All waveforms are the combination of multiple frequencies and amplitudes of sine waves interfering with each other: sometimes constructively (making the signal higher amplitude), sometimes destructively (making the signal lower amplitude). **Figures 9a–c** show 400, 2400, and 4800Hz sine waves. **Figure 9d** shows the result of combining 400Hz and 2400Hz. **Figure 9e** shows the result when the 4800Hz wave is added to the previous.

This might seem a little odd – intuitively you might feel that it should be possible to create a waveform that can't be constructed entirely from sine waves, but you can't. We won't go though the mathematics behind this here, but if you're interested, look into Fourier analysis and Fourier transforms. The latter is the process of breaking down a wave into its component sine waves. In computing, you'll often see this referred to as fast Fourier transform (FFT) as this is the algorithm used to do it.

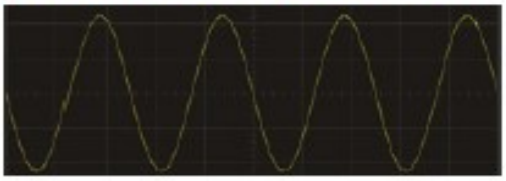


Figure 9a
A 400Hz sine wave

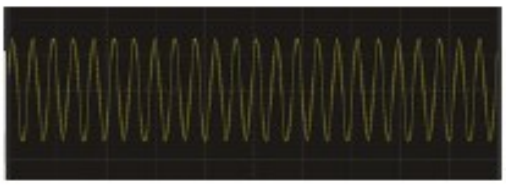


Figure 9b
A 2400Hz sine wave

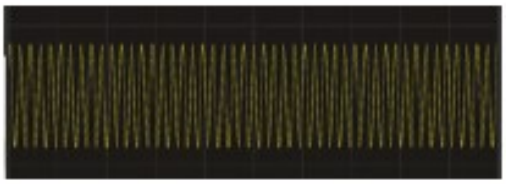


Figure 9c
A 4800Hz sine wave

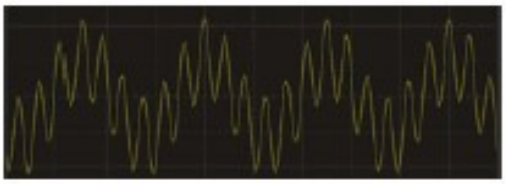


Figure 9d
400 and 2400Hz sine waves

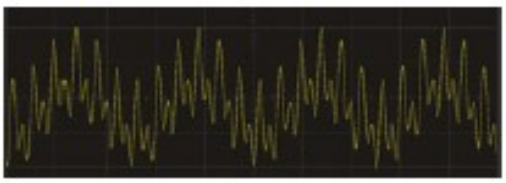


Figure 9e
400, 2400, and 4800Hz sine waves

> "All waveforms are the combination of **multiple frequencies and amplitudes of sine waves**"

VISUALISING

The iFunGen iOS app is a handy way to generate simple or complex signals.

If we take the wave from **Figure 9d,** run it through a low-pass filter whose cutoff is 1400Hz, we would get something close to the 400Hz wave in **Figure 9a**. Conversely, if we ran it through a high-pass filter with the same cutoff, we'd get something close to the wave shown in **Figure 9b**.

MUSICAL ENHANCEMENTS

Now consider a monophonic music recording (stereo or surround simply has multiple monophonic channels, so let's keep it simple). That's a single signal, but you can hear all the instruments and voices. You can recognise melodies and the words being sung. It's a very complex waveform that varies over time. There's an incredible number of different underlying frequencies of varying amplitudes all getting combined to create that one waveform.

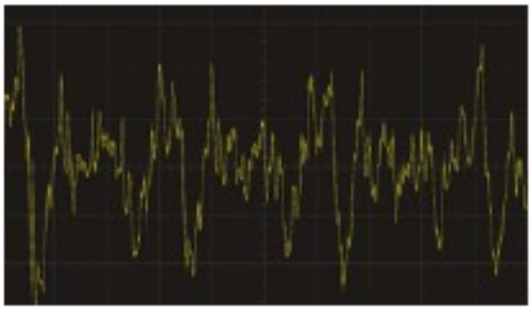


Figure 10
A short waveform from music

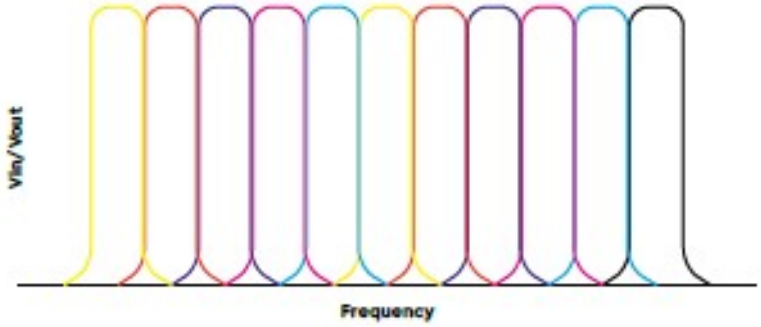


Figure 11
Response curves for a multiband filter

Figure 10 shows a snippet of the waveform from some music.

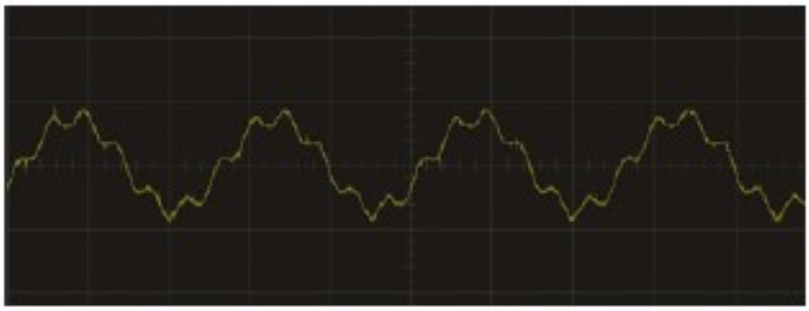
Now consider an equaliser: a series of band-pass filters with increasingly higher frequency cutoffs. Adjusting a band changes the amount of frequencies in the band that get through. On a simpler amplifier you might only have bass and treble. These would control a low-pass and high-pass filter, respectively. If it has a mid(-range) control as well, that would control how much gets through a band-pass filter whose low and high cutoffs correspond to the cutoffs of the low- and high-pass filters. **Figure 11** shows the filter response curves for a multiband filter. By changing the strength of a filter's response curve (its height), more or less of that range of frequencies gets through. Reducing the responses of the higher bands results in a bassier sound. Reducing the lower bands results in a brighter sound.

GETTING HANDS ON

Try building some RC filters and feed various signals into Vin. You can use the oscillators we built last month, or connect the audio output of a music player (phone, computer, etc.). For example, if we take the 400+2400Hz signal, shown in **Figure 9d,** and run it through a low-pass RC filter with a 10nF capacitor for C and a 100kΩ potentiometer for R, we can adjust R to get Vout that is shown in **Figure 12**. You can see that most of the 2400Hz signal is filtered out.

If we swap R and C to make a high-pass filter and adjust R, we can get Vout, as shown in **Figure 13**. Here you can see that there's not much of the 400Hz signal remaining. Try other resistor/capacitor combinations and signals and observe (or listen to) the results.

Last month we looked at oscillators that make signals. This month we've looked at filters that can remove some ranges of frequencies from a signal. Next month, we'll pull out some transistors again and have a look at amplifiers that make signals stronger (louder if you drive a speaker with them). □



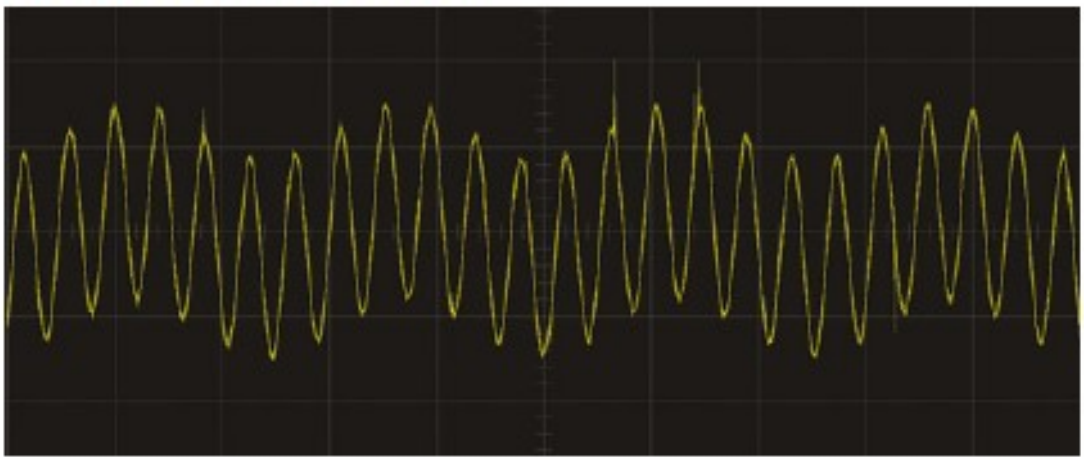


Figure 12
The 400+2400Hz signal passed through a low-pass filter

Figure 13
The 400+2400Hz signal passed through a high-pass filter

HELLGATE AMATEUR RADIO CLUB

AGENDA – 11 Sep 2023 meeting

Meeting called to order at 7:__ PM
Introductions. Please make sure you signed the attendance sheet **Quorum Y/N ____**

Last meeting minutes, Aug: Discussion _____
Motion to approve minutes: 1St _____ 2nd _____ Vote: P/F/T

Treasurer's report: Discussion _____
_____
_____
Motion to approve report: 1St _____ 2nd _____ Vote: P/F/T

Repeater Committee Report: Discussion _____
_____
Motion to approve report: 1St _____ 2nd _____ Vote: P/F/T

Events for 2023:

Sep 9	Fox Hunt – Multi-event Day
Sep 11	Testing 5:30pm and Meeting 7:00pm
Oct 7-8	ARRL Simulated Emergency Test
Oct 9	Columbus Day
Oct 9	Testing 5:30pm and Meeting 7:00pm
Oct 31	Halloween

HARC Social Net every Saturday morning @ 9:00 AM on 147.040 Repeater – Buy/Sell - During.

HARC Discussion List

1. _____
2. _____
3. _____

VHF Net Control Station assignments:

Sep	06	N7PAS	Backup	Oct	04	N7PAS	Backup
Sep	13	N7JGS	Backup	Oct	11	_____	Backup
Sep	20	K7MSO	Backup	Oct	18	_____	Backup
Sep	27	NZ7S	Backup	Oc	25	_____	Backup
___	__	_____	Backup	___	__	_____	Backup

Reminder: Backup is always the next person in line as the net control.

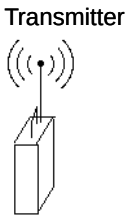
Good and Welfare. _____
***** Next Club meeting: Sep 11 *****
Is there any other business ? _____
Since there are no other items of business this meeting is Adjourned.

Program: Show and demonstration of home brew air cannon by K7MTD.

September 2023

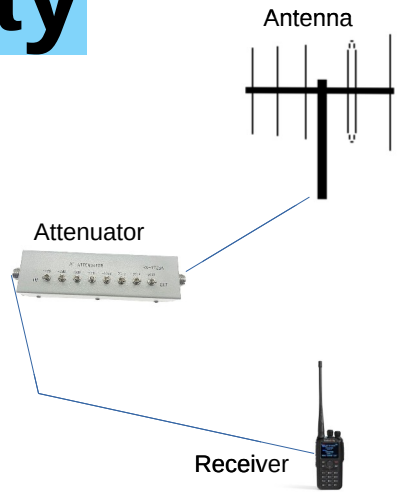
Sunday						
27	28	29	30	31	1	2
						HARC Net 9:00Am on 147.040 Repeater
3	4	5	6	7	8	8
	Labor Day		ERC NET 7:30 On 146.900-88.5T BARC NET 8:15 On 146.720-203.5T HARC NET 9:00 On 147.040+No Tone			HARC Net 9:00Am on 147.040 Repeater Fox Hunt Field Day – Multi event
10	11	12	13	14	15	15
	HARC Testing 5:30 & Meeting 7:00 PM		ERC NET 7:30 On 146.900-88.5T BARC NET 8:15 On 146.720-203.5T HARC NET 9:00 On 147.040+No Tone			HARC Net 9:00Am on 147.040 Repeater
17	18	19	20	21	22	22
			ERC NET 7:30 On 146.900-88.5T BARC NET 8:15 On 146.720-203.5T HARC NET 9:00 On 147.040+No Tone			HARC Net 9:00Am on 147.040 Repeater
24	25	26	27	28	29	29
			ERC NET 7:30 On 146.900-88.5T BARC NET 8:15 On 146.720-203.5T HARC NET 9:00 On 147.040+No Tone			HARC Net 9:00Am on 147.040 Repeater

HARC Fox Hunt Field Day



First Annual

Fox Hunt – Transmitter hunting, is an activity wherein participants use radio direction finding techniques to locate one or more radio transmitters hidden within a designated search area.



Fox Hunt Field Day on 9 Sep 2023 from 10:00am -4:??pm.

Incentive's to be presented to winner's.

10-11am Group get together at Fort Missoula
See what 3 words https://what3words.com/paused.inner.create
Introductions, help with radio's, antenna's, attenuator, computer programming if you bring your cable, etc.
11-12 Short localized hunt, for training - no awards.
12-1:30 Lunch (bring your own) and conversation.
1:30-3:00 Large area, Missoula valley, fox hunt
awards will be given for 1st, 2nd, and 3rd place only.
3:00- ??(till done) Conversation and award's for best times.

Foxhunt transmitter frequency 146.560 MHz. We will use 147.040 Mhz repeater if you need directions, and for check in at start of hunts.

All are welcome. Invite your family, friends, and come have a fun day.

Simulated Emergency Test

2023 Simulated Emergency Test

Emergency preparedness takes the spotlight on October 7 – 8.

Steve Ewald, WV1X

The ARRL Simulated Emergency Test (SET) is on the horizon, and you'll want to be ready at the individual operator and station levels and within your amateur radio community and ARRL Section. This year's national emergency exercise will occur on October 7 – 8. It will test your skills and the preparedness of many organizations that are called into action when actual emergency situations arise, and it presents an opportunity to develop new skills.

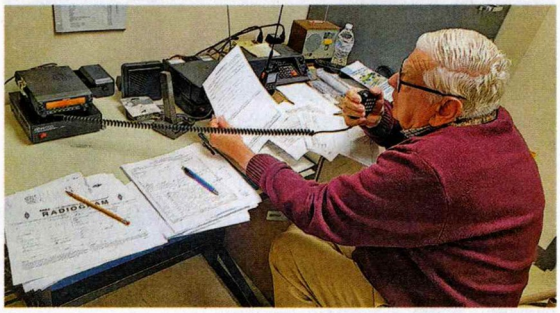
ARRL Field Organization leaders, such as Section Managers, Section Emergency Coordinators, Section Traffic Managers, District Emergency Coordinators, Emergency Coordinators, Net Managers, and their assistants are among the many amateur radio operators who are developing plans and scenarios for this year's SET.

Working Together

This annual nationwide exercise is a prominent time to work with partner organizations and served agencies to learn what their needs may be before an emergency occurs. An important goal of the SET is getting to know how to work with these organizations at the local, Section, and state levels for effective emergency and public services.

For decades, ARRL has established national working relationships with organizations and agencies like the Federal Emergency Management Agency (FEMA), the American Red Cross, The Salvation Army, the National Weather Service, the National Communications System, the Association of Public-Safety Communications Officials-International (APCO-International), Citizen Corps, National Voluntary Organizations Active in Disaster (NVOAD), REACT International, Inc., the Society of Broadcast Engineers (SBE), and the Boy Scouts of America. More details on these organizations and how they work with ARRL and amateur radio operators can be found at **www.arrl.org/served-agencies-and-partners**.

The SET invites all amateur radio operators to become better aware of emergency preparedness and the training that is available. The Amateur Radio Emergency Service® (ARES®), the Radio Amateur Civil Emergency Service (RACES), the National Traffic System, SKYWARN®, the Community Emergency Response Team (CERT), The Salvation Army Team Emergency Radio Network (SATERN), other auxiliary communications groups, and public service-oriented radio amateurs are encouraged to participate.



Paul Harig, KC3QIU, operated from the New Cumberland Township Office during the South Mountain Radio Amateurs SET in the Eastern Pennsylvania Section. [Paul Harig, KC3QIU, photo]

Get Involved

To find out how to get involved in this year's SET, contact your local ARRL Emergency Coordinator or Net Manager. Check on upcoming planned activities through local, state, or Section-wide nets. Contact your local club or clubs in other areas to find out who the Emergency Coordinator is, where the nearest ARES group meets, and which area it serves. In addition, refer to the ARRL Section web pages at **www.arrl.org/groups/sections**.

ARRL Field Organization leaders may conduct their local or Section-wide SET at a time other than the weekend of October 7 – 8 to avoid schedule conflicts and allow maximum participation. Exercises should be held no later than the end of the fall season or the calendar year.

Additional background information regarding the annual SET can be found in the article, "Simulated Emergency Test 2022 Results," in the July 2023 issue of *QST*. Guidelines and specific SET reporting forms for ARRL Section and Field Organization leaders and reporting participants can be found at **www.arrl.org/public-service-field-services-forms**. If you are an Emergency Coordinator, Net Manager, or Section leader in charge of reporting this year's SET activity on behalf of your group, please fill out the online reporting forms.

FINISHED DRAFT

FINISHED DRAFT

CONSTITUTION

HELLGATE AMATEUR RADIO CLUB, INC.

Missoula, Montana **AUG 26, 2023 – Change to vote date**

PREAMBLE

We, the members of the HELLGATE AMATEUR RADIO CLUB, INC., a non-profit organization, endeavoring to promote the art of Amateur Radio in Missoula and surrounding counties for individual and public use, do hereby ordain and establish this Constitution. This endeavor shall include fostering cooperation among its members; developing individual proficiency; furthering the interest of amateur radio in the community; and providing emergency communications when called upon by proper civil, federal, or military authority. This also includes testing for public safety, fostering national or international competition, and other public service. The organization is organized exclusively for charitable, educational, scientific, and public safety purposes relating to amateur radio in our community and state within the meaning of section 501(c)(3) of the Internal Revenue Code or the corresponding provision of any future United States internal revenue law.

Article I – TITLE

The Organization shall be known as the Hellgate Amateur Radio Club, Inc. (HARC). The Club shall be identified as such, or by such call sign(s) as may be assigned by the Federal Communications Commission (W7PX).

Article II – MEMBERSHIP

All persons interested in amateur radio shall be eligible for membership. Membership shall be by application upon such terms as the Club shall, by its By-laws, provide.

Article III – OFFICERS

Section 1: The officers of this Club shall be the President, Vice President, Secretary, and Treasurer. These officers will also constitute the Board of Directors of the Club.

Section 2: The officers of this Club shall be elected for a term of one (1) year by a ballot of the majority of the voting members present. Officers will be nominated at the regular October meeting, elected at the regular November meeting, and, after one month to bring the new officers up to date, assume the duties and responsibilities of their respective offices in January at the first regular monthly meeting of the new year.

Section 3: Vacancies occurring between elections must be filled by special ballot at the first regular meeting following the meeting at which the withdrawal or resignation is announced. Election shall be by a ballot of the majority of the voting members present.

Section 4: Officer Removal: Proposals for removal shall be submitted individually in writing by five voting members at a regularly scheduled meeting. Voting on the removal proposal will be by majority vote of the quorum conducted at the next regular meeting.

Article IV – DUTIES OF OFFICERS

Section 1: The President shall preside at all meetings of this Club and conduct the same according to the rules adopted. The President shall enforce due observance of this Constitution and By-laws, decide all questions of order, sign all official documents that are adopted by the Club and none other, and perform all customary duties pertaining to the office of the President. The President shall also have authority to make appointments of members to specific positions as necessary for the needs of the Club, other than those offices specifically enumerated. The President shall, at the expiration of the current term of office – during the month of December, turn over everything belonging to the Club to the newly elected President.

Section 2: The Vice-President shall assume all the duties of the President during the President's absence. The Vice-President shall, at the expiration of the current term of office – during the month of December, turn over everything belonging to the Club to the newly elected Vice-President.

Section 3: The Secretary shall keep the Constitution and By-Laws of the Hellgate Amateur Radio Club and have the same for inspection at every regular meeting. The Secretary shall cause all amendments, changes, and additions to be added therein and shall permit the Constitution and By-Laws to be reviewed by any member upon request. The Secretary shall keep a record (Minutes) of the proceedings of all meetings, handle such correspondence as may be necessary for the business of the Club, and read communications at each meeting. The Secretary, in conjunction with the President, shall also be responsible for such reports as may be requested by the ARRL. The Secretary shall, at the expiration of the current term of office – during the month of December, turn over everything belonging to the Club to the newly elected Secretary.

Section 4: The Treasurer shall keep records of the Club's finances, membership, and equipment assets. At each monthly meeting the Treasurer shall submit a report, and upon request, an itemized statement of disbursements and receipts. The Treasurer shall accept and record applications for membership and membership renewals to the Club and shall maintain a current list of members. The Treasurer shall also be responsible for processing ARRL memberships and renewals that may be submitted by individual Club members through the Club. The Treasurer shall also be responsible for making such tax and corporate reports as may be required of the Club by state and federal laws. The Treasurer shall, at the expiration of the current term of office – during the month of December, turn over everything belonging to the Club to the newly elected Treasurer.

ARTICLE V – POSITIONS & COMMITTEES

Position/AD-Hoc Committee Organization:

Section 1 - The Board (President, VP, Secretary, Treasurer) (See Article III Section 1)

Section 2 - Definitions:

Club Positions and Role Descriptions: These persons should operate as individuals, draw on the skills and talents of each member, and work toward common goals to ensure club success. Effective members should have: a commitment to the club, sufficient time to devote to the position, an understanding of the role of the Club and their role within it.

Section 3 - These positions and committees shall be appointed by The Board as the needs of the club dictate.

Section 4 - These **required positions** will consist of 1 person (appointee or volunteer) for the following assignments:
Emergency Coordinator – See By-Laws Section 5 paragraph 3
Trustee – Holds club license, A club station license grant may be held only by the person who is the license trustee designated by an officer of the club. The trustee must be a person who holds an operator/primary station license grant.
QSLs, Awards – Receive and maintain cards and grant earned awards to qualified members.
Webmaster – Actively maintain and update the clubs web site w7px.org
Asst Webmaster – Assist the Webmaster in maintaining the clubs web site.
License Exam Coordinator – Insure monthly exams take place with qualified examiners.
Static Editor – Edit/publish the clubs monthly newsletter with accurate and informative information.

AD-HOC Committees (ad-hoc meaning, adverb, 1.-For the specific purpose, case, or situation at hand and for no other. 2.-On the spur of the moment. 3.-For a particular purpose.)

ad-hoc group of 3 persons, consisting of a chair and 2 members, examples:
Fundraising, Community outreach, Club meeting programs, Repeater operations, Buy/Sell operations, Frequencies used by club and surrounding area for new members

ARTICLE VI – DUES

The Hellgate Amateur Radio Club, by majority vote of those voting members present at any regular meeting, may levy upon the general membership such dues and assessments as shall be deemed necessary for the business of the organization.
Non-payment of such dues shall be cause for ~~expulsion~~ being dropped from the Club roll, except where specifically exempted by a majority of the voting membership present at a regular meeting.

ARTICLE VII – AMENDMENTS

Any proposed amendment, change, or addition to this Constitution or By-Laws must be presented in writing by a voting member at a regular meeting. Such proposed amendment, change, or addition must be published in the next newsletter or by special mailing, prior to the next regular meeting. Instructions shall also be published giving instructions for voting by proxy for members unable to attend. It shall be voted on at the next regular meeting and must be approved by two-thirds (2/3) of the voting membership present, including written proxy votes or votes communicated by radio or electronic means by those regular members unable to attend.

ARTICLE VIII – DISSOLUTION

Section 1: Upon the dissolution of the organization, the Board shall, after paying or making provisions for the payment of all the liabilities of the organization, dispose of all the assets of the organization exclusively for the purposes of the organization in such manner, or to such organization or organizations organized and operated exclusively for charitable, educational, religious, or scientific purposes as shall at the time qualify as exempt organization or organizations under section 501(c)(3) of the Internal Revenue Code of 1986 or the corresponding provision of any future United States internal revenue law, as the board shall determine.
Section 2: Any such assets not so disposed of shall be disposed by a court of competent jurisdiction of the county in which the principal office of the organization is then located, exclusively for such purposes or to such organization or organizations as said court shall determine, which are organized and operated exclusively for such purposes.

BY-LAWS of the

HELLGATE AMATEUR RADIO CLUB, INC.

Missoula, Montana

Section 1: MEMBERSHIP

A. Type of Membership

1. **Membership** shall be open to all persons with an interest in the amateur radio service,
   a. Who subscribe to the nature and purpose of that service as described in the governing regulations of the Federal Communications Commission, Part 97, Subpart A.
   b. Who express a willingness to abide by the Club Constitution and By-Laws.
   c. Who commit to abiding by the dues requirement described in Section 3 of the By-Laws.
   d. Who hold a valid amateur radio license.

2. **Associate Membership**. Persons who meet all the qualifications for membership described in A1, above, except for (A1d) may be accepted as Associate Members. Associate Members are welcome to attend all Club meetings, to take part in discussions, and to participate in all Club activities as legally permissible.
   a. Associate Members are not entitled to vote on issues placed before the Club for formal decision and do not count as part of the quorum. (dues - see section 3A)
   b. Associate Members may become Full Members upon receiving a valid license (Call Sign).

B. Length of Membership

1. **Membership term** shall ordinarily be one calendar year, payable January 1st, but not later than April 1st.
   Annual memberships of two or more years may be secured by special arrangements with the Club Treasurer.
   Members whose dues are not current by April 1st shall be dropped from the Club roll.

2. **Life Memberships**. Lifetime memberships may be awarded to qualified applicants upon payment of a dues charge equivalent to ten (10) times the current annual dues rate.
   The Club Officers shall determine the number of Life Memberships in any one (1) year but in no case will these memberships exceed ten percent (10%) of the total Full Membership of the club.
   Occasionally the Club may honor an outstanding member by awarding him, or her, a lifetime membership at no charge.
   a. Life membership must be voted on and approved by the club prior to acceptance.
   b. Termination of Life Memberships. For those who move outside the Missoula area, (more than 50 miles), and thus will be unable to participate in and with the Club shall be dropped from the Club roll.

C. Cost of Membership

1. **Family Memberships**. A Club member meeting the qualifications of A, above, may include immediate family members who reside in their home, and who meet the qualifications of A above, in the Club upon application and payment of an additional $5 per such family member over and above his, or her, own dues. Family members will have regular or associate status according to their qualifications.

2. **Student memberships**. Full-time students enrolled in an accredited educational institution and otherwise qualified for Club membership may pay a reduced dues rate as set forth in section 3A.

D. Termination of Membership

Memberships may be terminated by a majority vote of the total voting membership present at any regularly scheduled meeting. Proposals for termination shall be submitted in writing by three (3) independent Members at a regular meeting, to be voted upon at the next regular meeting.

Section 2: MEETINGS

A. Regular meetings shall be held on the second Monday of each calendar month at such place as the President shall order. The regular meeting can be scheduled for a day other than the second Monday by a majority vote of the voting members present at a regular meeting.

Special meetings can be called by the President upon the written request of any five (5) voting members of the Club. Notices shall be sent to all the members informing them of the special meeting and the business to be transacted. Such notices shall be given to the Club members by mail, telephone, or by amateur radio, and shall be given at least 24 hours before the meeting time. Only such business as designated in the said notice shall be transacted at such meetings.

At any meeting, one-fifth (1/5) of the membership in good standing (see Section 1A1), shall constitute a quorum for the transaction of regular business.

Roberts Rules of Order shall govern all regular and special meetings. (See attachment 1)

Section 3: DUES AND SPECIAL ACCOUNTS

A. The regular club dues for the following year shall be set by resolution at the October meeting of the calendar year.
All membership ends the last day of December of each year.
Regular dues shall be set for a single Member.
Additional immediate family members living in the same household shall be eligible for a Family Membership and shall be charged dues at one-fifth (1/5) of the regular rate per additional individual.
Student and Associate Members shall be eligible for membership at one-fifth (1/5) the rate of a Membership.

B. The regular club dues shall be payable in, or before, the first month of the calendar year. Reminders of dues due will be printed in the November, December and January Static. Members who have not paid fees by April 1st shall be dropped from the Membership list.
Any Member paying dues after the first month of the calendar year shall be required to pay the annual dues in full.

C. New members joining the club after the first month of the calendar year shall pay a prorated amount based on the month in which they are applying for membership. New member dues shall be prorated in increments equaling one-twelfth (1/12) of the dues of a Member per month.

D. All dues will be current before a member will be allowed to:
1. participate in Club elections,
2. vote on Club activities,
3. be involved in, or appointed to, any committee.

E. Club Newsletter
1. Every Member shall receive the Club Newsletter, *The Static* – via email.
2. Complimentary subscriptions may be provided to other clubs and specific officials at the discretion of the Board of Directors of the Club.

F. All interest earnings and other revenue generated by the Club shall be deposited in the General Fund, unless specifically directed by a majority vote of the voting membership at a regular meeting or requested by the donor.

G. Audit
Once a year, in February or March, the President shall appoint 2 members other than an officer of the Club to review the financial records of the Club, during the next month, and to report back to the membership, at the next meeting, as to the correctness of said records. The members do not need to be auditors.

Section 4: AUTHORITY

This document shall take precedence over any other publications (Static, web site, membership forms, etc.) that the club publishes. It shall be the final authority should their be a dispute between literature.

Section 5: ELECTIONS AND APPOINTED POSITIONS

The Officers of the Club shall present to the membership at the October meeting a list of nominees for Officers of the Club. Prior to the election at the November meeting, any voting member present may make additional nominations from the floor. The election of officers shall be held at the November meeting.

Club Officers may appoint volunteer members to positions that aid and assist Club operations. Club Officers who make an appointment shall be responsible for the actions of the appointee in Club matters.

To ensure the continued ability of the Club to respond to requests for communications assistance from public agencies, the Club shall designate a member, who holds a valid General Class or higher Amateur Radio License, as Emergency Coordinator (EC). The Emergency Coordinator will be the designated liaison between public agencies and the Club in all matters relating to emergency communications. Club Officers and Standing Committee members should ensure that the Emergency Coordinator is consulted about any proposed procedures or actions that may impact emergency communications operations.

The undersigned, being the directors of the Hellgate Amateur Radio Club, do hereby certify that the foregoing Constitution and By-laws were duly adopted by the required vote of the membership of said corporation at a regular meeting held on the _____ Day of _____, 2023 (Add new Day, Month, Year).

President, Eric Sedgwick – NZ7S.

Vice President, David Herzberg – K7MTD

Secretary, Mike Leary – K7MSO

Treasurer, Dick Walton – W7XT

Appointed Assistants:

Paul Shuey – N7PAS (Editor)

Dale Baldwin – W7RPG

Attachment 1

Robert's Rules of Order September 29, 2021

Provides a common framework, vocabulary, and toolset for effective decision making

Provides due process
- Enables everyone present to participate
- Allows decision making clarity
- Ensures that the majority decides and the minority is heard

1. How to Use

Establish a quorum
Approve the agenda
Motions
- Making
- Debating
- Amending
- Voting
- Disposing

Adjourn the meeting

2. Making a Motion

- Wait to be recognized by the chair
- Make a concise, affirmative motion
- Wait for a second
- Can only have one main motion at a time

3. Debating the Motion

- The chair facilitates debate
  - Chair does not enter the debate while acting as the chair
- Speakers must be recognized by the chair

4. Amending the Motion

- Make a motion to amend the main motion
  - Wait for a second
- Restate the main motion as amended
- Amendments must be voted on before returning to the main motion
- Approving an amendment does not mean the main motion has been approved
- Must still vote on main motion

5. Voting on the Motion

- Charter contains rules for voting
- Chair determines how the vote will be taken in
  - Unanimous consent
  - Placard or hand raising
  - Roll call or paper ballot
- The chair only votes if the vote will break a tie or if a ballot is used

6. Disposing of Motions

- Motion to the table
  - A way to postpone the motion until later in the current meeting or a later meeting
- Motion to postpone indefinitely
  - A way to terminate consideration of a motion

Robert's Rules Facilitator Tips

If you want to:	You say:	Actions to follow
Ensure quorum is present	Do we have a quorum present?	Liaison and admin support determine
Request a motion for approval	Is there a motion for approval of the ____	Go to next row
Ask for a second	Is there a second?	Go to next row
Ask for objections	Are there any objections to approval?	Go to one of next two rows based on answer
If there are no objections	The ____ is approved.	None
If there are objections	We can open discussion of this item.	Discussion and a vote (see next row)
Call for vote	We will need to vote.	Go to next row
Ask for supporting votes	All in favor of approval.	Count votes and go to next row
Ask for opposing votes	All opposed to approval.	Count votes and go to next row
Ask for abstentions	Any abstaining?	Count votes and determine outcome
Go into closed session (ONLY for groups approved to hold closed sessions)	Is there a motion to go into closed session?	If there are no objections (requires at least two thirds), this ends the open session.
Close the meeting (no motion needed)	Since there are no other items, we will adjourn the meeting.	None

To adhere to our current Constitution – Article VII has been duplicated below.

ARTICLE VII – AMENDMENTS

Any proposed amendment, change, or addition to this Constitution or By-Laws must be presented in writing by a voting member at a regular meeting. Such proposed amendment, change, or addition must be published in the next newsletter or by special mailing, prior to the next regular meeting. Instructions shall also be published giving instructions for voting by proxy for members unable to attend. It shall be voted on at the next regular meeting and must be approved by two-thirds (2/3) of the voting membership present, including written proxy votes ~~or votes communicated by radio~~ or electronic means by those regular members unable to attend.

To comply with the above the Club set up a Constitution and By-Laws committee to work on this.
The committee has been working on this for the last 7 months.
The above 8 pages are the finished draft and is published in this newsletter to meet above needs.

Proxy voting is required for those that are UNABLE to be in attendance at the 9 October meeting.

Proxy voting will be done by sending an email to, or by mail to

secretary@w7px.org
1670 Sunflower Dr.
Missoula, MT. 59802

Proxy voting will be by saying I accept or I reject in your email.
Proxy voting is for those dues paying members who will not be able to attend the 9 Oct meeting.

Proxy voting will take place from 1 September to 30 September.
Votes sent in after 30 September will not be counted.
Please get your vote in early so they can be counted.

This vote requires 2/3 of the paid members ether present or proxy vote to pass.
PLEASE be at the meeting or send in your vote. Thank You.

The Board of Directors.

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Votes sent in after 30 September will not be counted.

Please get your vote in early so they can be counted.

This vote requires 2/3 of the paid members ether present or proxy vote to pass.

PLEASE be at the meeting or send in your vote. Thank You.

The Board of Directors

I (name - print) _____ do (mark one) accept _____ / reject _____ the new Constitution and By-Laws of the Hellgate Amateur Radio Club (HARC) as they have been provided to me. Signed this _____ day of September 2023.

Signature: _____