



L.A.R.A. Newsletter December 2016

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IN THIS ISSUE

From the Prez

It's hard to believe that the year is coming to an end. Oh what a year it has been. The club has grown in membership along with the number of activities that we've participated in.

The club has introduced new hams to the hobby through the two Technician classes conducted by Bob K5DCZ and Tim WZ5TM. Numerous upgrades were also trained in the General and Extra classes conducted by Jim K5VZ and Bob K5DCZ.

I'm proud to say that the club conducted and participated in activities such as Radio Day in the Park, Antenna Build Day in the Park, Fire Department Open House, Boy Scout Jamboree-on-the-Air, Safety/Security monitoring for the Lewisville Dam Run and much more.

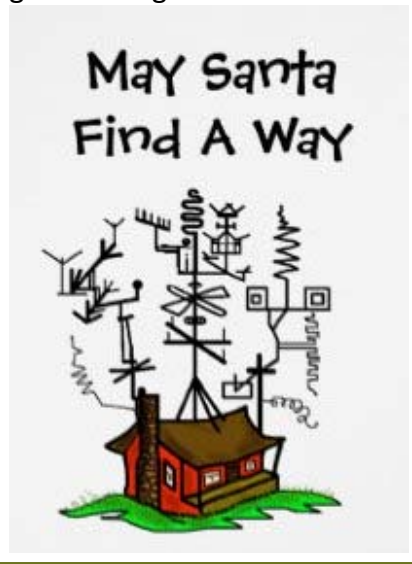
Now that we are firmly entrenched in the holiday season I would like wish a Merry Christmas and Happy New Year from me and my family to each and every one of you and your families.

73 Len

Holiday Happenings

Christmas Party

December 10, 1800 hrs. at Landmark Grill, 1297 Justin Rd (407). Sign up [HERE](#). Bring a gift valued at \$20.00 or less for the gift exchange.



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L.A.R.A. Newsletter
 Is published each month for the purpose of informing L.A.R.A. members of current events and issues of interest to the membership. Articles and suggestions are always welcome. Articles that appear in this publication may be reproduced provided credit is given to L.A.R.A. Newsletter and to the original source.

L.A.R.A. On-Line
 Web site – [click here](#)
 By-Laws -- [By-Laws](#)
 SOP -- [SOP](#)

Free Digital Interface Without Much Effort

By: Jim, WB8YWA

Here is a very simple and free method of connecting your rig and computer together for having fun on the digital modes.

First download one of the many free digital mode software programs. They are out there for many different modes.

1. PSK
2. RTTY
3. WSJT
4. SSTV
5. and on and on. . . .

Then learn how your software works and make a Google search to learn where on the band and settings to use for your radio. For example PSK on 20 meters is 14.070, USB.

A great web site for PSK is <http://www.arrl.org/news/10-tips-for-the-psk31-digital-mode>

Now the easy part --

To receive all we need to do is allow our computer to receive data from our radio. The data tones coming out of the speaker of the radio will go through the air into the mic of the computer and you will start decoding the data.

To transmit the software will generate data tones into the computer speakers and through the air again your radio mic picks up these tones and transmits them.

Some useful tips on using this method.

1. Your shack needs to be quiet of back ground noise so neither radio or computer mic picks up clutter noise.
2. Do not use compression on your rig.
3. Use VOX on your rig for the automatic keying.
4. Remember a cough or someone coming into your shack talking will put voice on the air and you are transmitting on the CW only portion of the band.
5. Adjust mic of radio and volume of PC output so that your ALC is at zero. Your radio should have an ALC meter that will allow you to do this.
6. Power out should be kept at 20 to 30 watts, 40 max.
 - a. Reason 1, you do not need much power for digital modes
 - b. Reason 2, digital modes are 100% duty cycle and you do not want to hurt your finals.
7. Look up the frequency and sideband used for the different digital modes.

This is not the most perfect way, but works very well --

- A simple hardwired interface is nothing more than two 600:600 ohm transformers where one is wired to jacks from the computer speaker to the mic of the radio and the other is wired from the speaker of the radio to the mic of computer.

It is nice to have a [Signal Link](#) or a [Rigblaster](#) interface. They give you xmit and receive level adjustments. But, these cost dollars and the above method will get you on the air using digital modes without spending any dollars.

Have fun.

What's happening in the DX World

By: Steve, W5JK

(Editor Note: Steve has graciously volunteered to make this a monthly column. Looking forward to seeing all that is going on in the world of DX.

He will begin accruing and formatting various info throughout each month and publish a short summary for inclusion in the newsletter. Following is not a short summary of various DX activities but it is specific about one very important and very rare operation. A lot of folks will be chasing this one for certain, including Steve himself.)

A message to DX'ers About 3Y0Z operation posted by the DXpedition team in [DXCoffee weekly](#).

Stay tuned for new updates on operation status!

A DXpedition to Bouvet is not easy. Bouvet is a serious and dangerous place; demanding attention to safety, serious planning, physical and mental endurance, time to allow for storms and rough seas, and a team with the right balance of size, experience, talent, emotional stability, and sense of purpose. We feel we have met these criteria but when we arrive at Bouvet we also need to attend to our obligations to you, our financial supporters, and our DX audience. How we meet those obligations and expectations will define us as a team.

It is our belief that, given the rarity of this entity, we must make this a major effort, not a small scale operation. We must utilize maximum legal power, the best antennas, world class transceivers, propagation studies, the best possible location on the island, a safe vessel and crew, highly qualified helicopter pilots, as well as the complimentary resources of our team.

(Continued on next page)

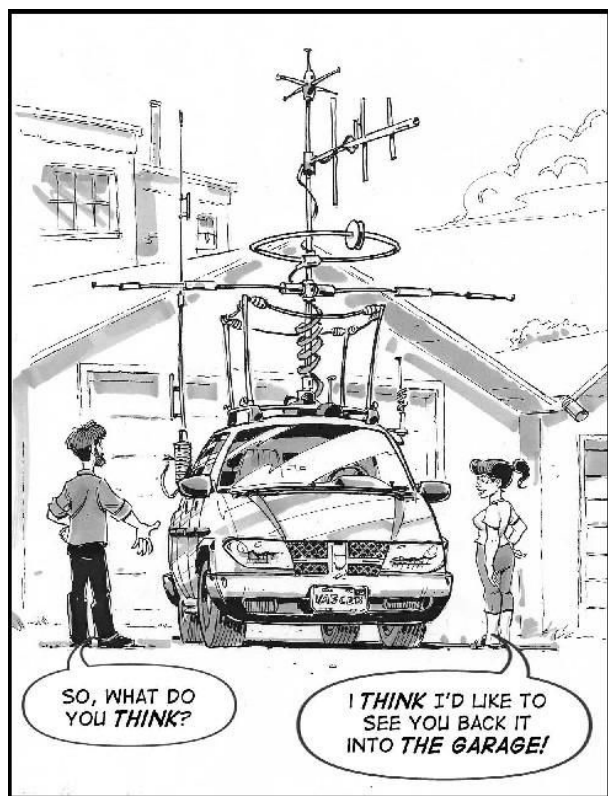
We will need near real time information flowing to us through our extensive pilot system, so that we can maximize our primary purpose – providing QSO's.

We have a conscious. We will not do this just for the sake of doing it and end up using a compromised location, less than 24/7 coverage of all open bands, limited power, inefficient antennas, and insufficient time at the island. We want to do this right and give everyone the best possible chance of making the QSO's they desire, be they on 160, the WARC bands, SSB, CW, RTTY, or 6 and 2 meter EME.

We have selected a site for our camp and are planning how we will arrange our shelters. It appears that we will have plenty of room for very good antennas and are planning how we will place them.

You can be confident that we will do our very best for you! No shortcuts or compromises! Please visit our website at www.bouvetdx.org for more information and regular updates. Our team will appreciate any support you can give us. Thank you for your interest.

The 3Y0Z Bouvet Island DXpedition Team.



Upcoming Events

Go to the L.A.R.A. web site – [click here](#)
 Scroll down on the home page to reach the Upcoming Events calendar.



Cross Word Puzzle of the Month

All puzzles are published with the permission of the author.

by Chris Codella, W2PA

8/10/2009

Ham Humor, Part 2

Across

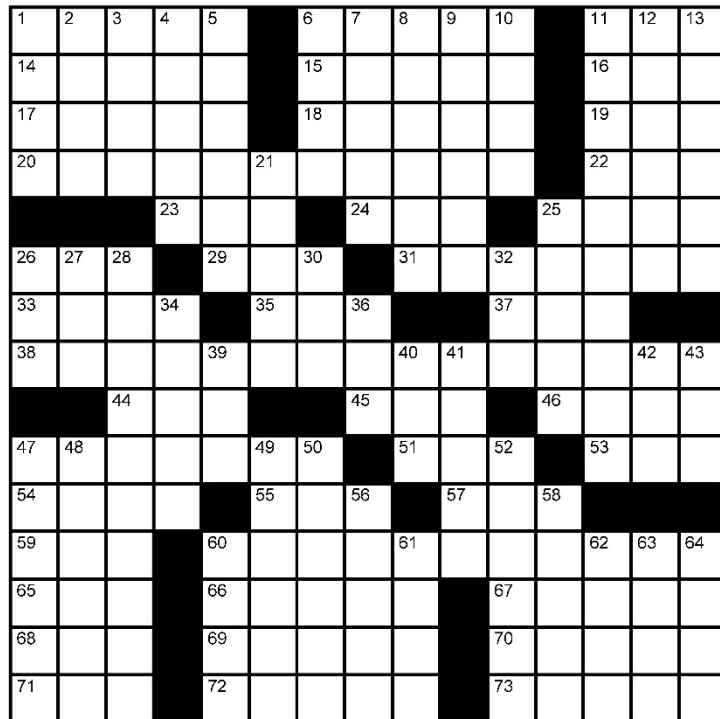
1. Remembered place in W5-land
 6. Sprays
 11. Small rigs
 14. F3 compared with A1, say
 15. HPM call sign, once
 16. Deleted entity island, with Abu
 17. A4 denizen
 18. J6 name
 19. 9/11 year
 20. Frequent author in 60-across
 22. F9 wine
 23. An H follower
 24. W1 to CN dir
 25. I-land good
 26. UTC predecessor
 29. Thyristor type
 31. News
 33. Detect after the detector
 35. Famous W4 suffix (SK)
 37. Cyber attacker, with net
 38. What 20 across' articles described
 44. Alpha male suffix?
 45. Former F coin
 46. CW, to FCC
 47. Adobe product
 51. Dir. for HL from W2
 53. W5 ARRL sect.
 54. Sinister look
 55. OSCAR, for one
 57. Ham equipment dealer
 59. Sometimes accompanies a QSL with an SAE
 60. Frequent place for ham humor

65. Opposite of paleo-
 66. Elmer, in a way
 67. VOA part
 68. Diamond or Comet mounting place
 69. Equatorial prefix
 70. 720 and 753, for example
 71. Opposite of 65 across
 72. Amplifier, slangily
 73. Sloper orientation

Down

1. Roll call misser
 2. Before mike
 3. 4X month
 4. The brainy bunch
 5. Tennessee transceivers
 6. XE sauce
 7. Accustom (to)
 8. Trig ratio
 9. BV city
 10. Shop partner, on a net, say
 11. Takes place at Hara
 12. It's everything, often
 13. Collins sets
 21. Scratches, as to a wire
 25. Flora and fauna
 26. JK predecessors
 27. Storage, for short
 28. What we did before wav, mp3, etc.
 30. Ham bane
 32. Ant. performance meas.
 34. Yagi yawer
 36. KB2GSD network
 39. Weep
 40. Skywave reflector

41. EME path
 42. Suffix with persist
 43. Driver's license datum
 47. Maker of 11 across, for example
 48. Some like it hot
 49. Per se
 50. Arm art
 52. Interlaces
 56. Iceland ID
 58. Go bad
 60. Locales
 61. Loads from lodes
 62. TI last name
 63. Desktop feature
 64. "___ we forget"



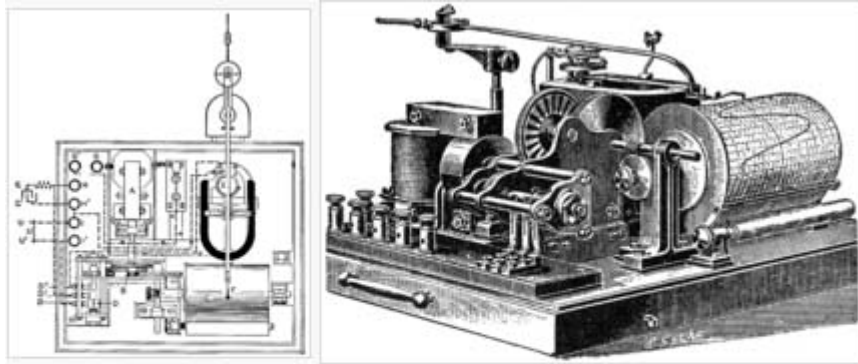
Technical Director's Corner

By: Erick, KOOM

What is a waterfall display and some of the history behind it?

We are going to take a journey through time and back to see where our wonderful display got its start and why it is important to understand its history.

On our first stop we stop at the automatic paper-drawn oscillograph - as you can see here it sort of looks like a seismograph. You ask yourself, what is the real difference in these two devices? They both measure a wave form that is generated somehow? The ground for the seismograph and an electrical stimulation for the other.



Schematic and perspective view of the Hospitalier Ondograph, which used a pen on a paper drum to record a waveform image built up over time, using a synchronous motor drive mechanism and a permanent magnet galvanometer. [3][4]

Time marches on and things went along without much change until the Cathode ray tube (CRTs) was developed in the late 19th century. The tubes were intended primarily to demonstrate and explore the physics of electrons (then known as cathode rays). Karl Ferdinand Braun invented the CRT oscilloscope as a physics curiosity in 1897. In other words, he made a toy to show his friends and then others started to get ideas from what they observed him do with this principle he displayed.

Let's speed up the history time dial a bit and see what we have now from that wonderful invention.



Oscilloscope with synchronized sweep. "HOR. SELECTOR" sets horizontal frequency range (the capacitor); "FREQ. VERNIER" adjusts the free-running frequency; "SYNC. AMPLITUDE" sets the gain to the comparator.



Type 465 Tektronix oscilloscope, a popular analog oscilloscope during the 1980s

Two examples of oscilloscopes with CRT Tubes in them, Both of these are from the 20th century and are now deemed as old school and are really not used very much anymore in the industry. Most new scopes now use an LCD display and can show much more than its older brother ever could. These newer scopes are much smaller, lightweight and are much of the time portable.

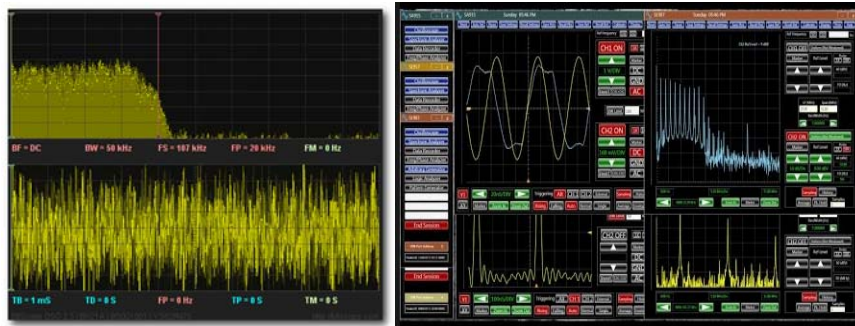


A modern Siglent SHS800 handheld digital storage oscilloscope (DSO) using an LCD for its display

It's here where we move through time again and we quickly find ourselves stepping off into the wonderful world of the storage oscilloscope and its many advantages to the technician and designer.



The storage oscilloscope could be thought of as the early predecessor of our modern day waterfall display as you can see in the picture above it shows multiple things at the same time. Thus it has to store this information and then display it to the engineer helping him/her with whatever project or problem they are working on.



Look at the screens on these two different units, here we are starting to see a blending or blurring of the definition of what an oscilloscope is and what a spectrum analyzer is.

What do you say, what is a Spectrum Analyzer? Well, pull up a rock and let's visit briefly.

In 1957 the US Air Force accepted delivery of a real-time spectrum analyzer with a Coherent Memory Filter system from researchers at Columbia University. This instrument simulated a bank of parallel filter/detectors, providing the constant-band-width spectrum of an applied analog input signal.



Nicolet Scientific 440A Mini-Ubiquitous FFT analyzer.



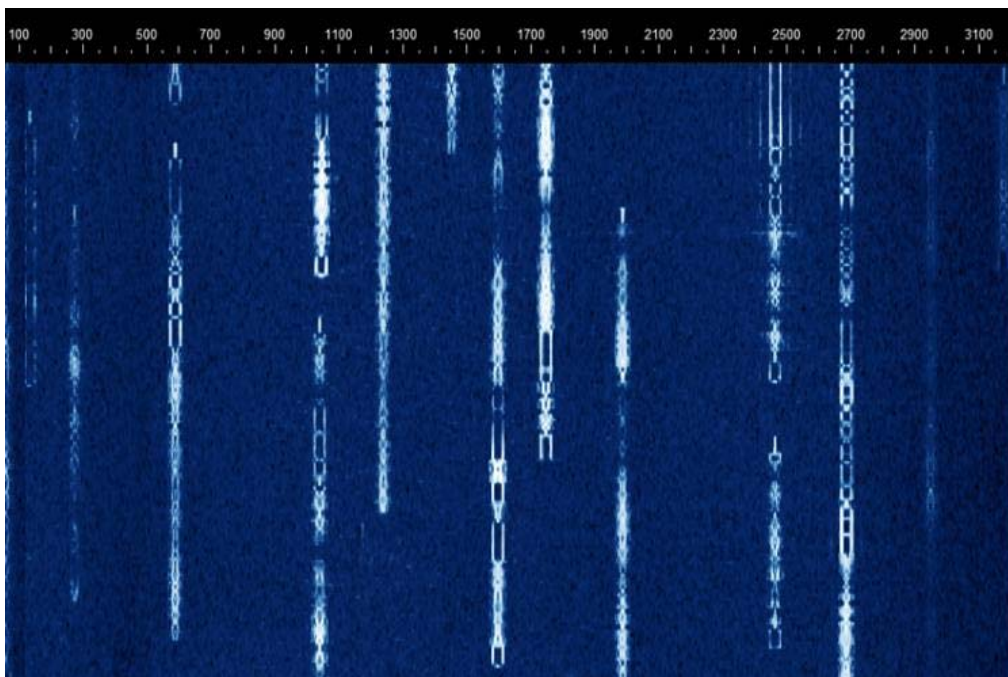
As you can see you had to be a gorilla and a tech wiz to carry and run one of these beasts. This picture shows one of the early Spectrum Analyzers, the grandfather to what we have now. The other picture shows a modern much lighter and more powerful version. I have included a video that shows what a spectrum analyzer is and how to use it. It can get a bit over the top but, gives you some really good information. <https://youtu.be/WnKK11UEvVE>

There is a great difference in the two units and what their function is and how they work. To be brief, the difference between an oscilloscope and a spectrum analyzer is that an oscilloscope allows you to view the signal in the time domain, meaning how the signal changes in response to time, while a (FFT) Spectrum Analyzer allows you to view the signal in the frequency domain, meaning how the signal changes in response to different frequencies.

So the oscilloscope plots the Amplitude vs. Time of the signal, while the Spectrum Analyzer plots the Amplitude vs. Frequency of the signal. Thus as the Spectrum Analyzer plots this Amplitude vs. Frequency you can see the changes and anomalies that show up. Those being our signals we are looking for or that Matrix looking stuff that looks cool that we want to decode.

We are still not there just yet...

Both of those units still do not tell me what is on a BUNCH of frequencies all at the same time. That is where the waterfall show its power and its relationship to its relatives the oscilloscope and the spectrum analyzer. A waterfall display is a graphical representation of the signals across a frequency range, generally color-coded to indicate signal amplitude or strength, displayed over time.



Pictured in the image above is a number of signal traces. Since the above was taken across a frequency range where PSK31 is used, the signals are very narrow (only a few tens of Hz wide each), but it could easily cover a much larger frequency range "zoomed out" and still look basically the same. Here, black and dark blue is basically background noise, and bright white represents a very strong signal. Another thing is that waterfall displays are good for chasing that weak signal DX scenario!!!

Having an overview of all signals across a portion of the spectrum allows you to quickly and easily determine whether there are any strong signals, which usually indicates stations that would be easy for you to make contact with. Not having to scan across the band to locate any station that might happen to be transmitting at the exact moment you pass over its frequency but rather being able to locate stations transmitting while you are working another station, means that you can immediately jump to the frequency when you are done with the previous station.

So to bring it all round and join it together an oscilloscope, spectrum analyzer and a waterfall display are almost the same thing...in fact to split a hair they are the same thing. The thing the waterfall display has going for it is that it can remember what the last moment in time looked like, take another reading and display it on the screen. In other words....When you first turn on a waterfall display and observe it. It will start a counter for as many lines as there are on the screen, for every line the spectrum analyzer runs a scan of the frequency or frequencies you have chosen. Then it displays that on the screen as ONE line...it does this really fast. Then it does it again...but this time before it displays what it just read it moves the last display up one and then displays the next line. It does this time after time after time...thus creating what is called a waterfall display. In reality we have always had a waterfall display we have just had no way to save and display all the readings at the same time till computers got small enough and fast enough to do all this heavy computing for us.

Hope you enjoyed this journey through time to understand how all your equipment is joined together in the vastness of time and space. I have included some links to keep you occupied over your Christmas break and help you with signal identification and waterfall displays.

<http://www.qsl.net/hamscope/> - not really a waterfall but, looks really cool.

<http://www.qsl.net/dl4yh/spectral1.html> - looks good, someone will have to review it.

<http://www.astrosurf.com/luxorion/qsl-ham-software.htm> - don't know anything about this so you're on your own.

<http://www.hrdsoftwarellc.com/> - VERY Expensive...but it does a CRAP LOAD of STUFF!!!! So you get what you pay for.

http://www.sigidwiki.com/wiki/Signal_Identification_Guide - lets you even hear what they sound like woot!!! They are loud so watch your ears.

<https://sites.google.com/site/feldhellclub/> - Their club is dedicated to Hellschreiber, or Hell.

Let's Build Radios

By: Jim, K5VZ

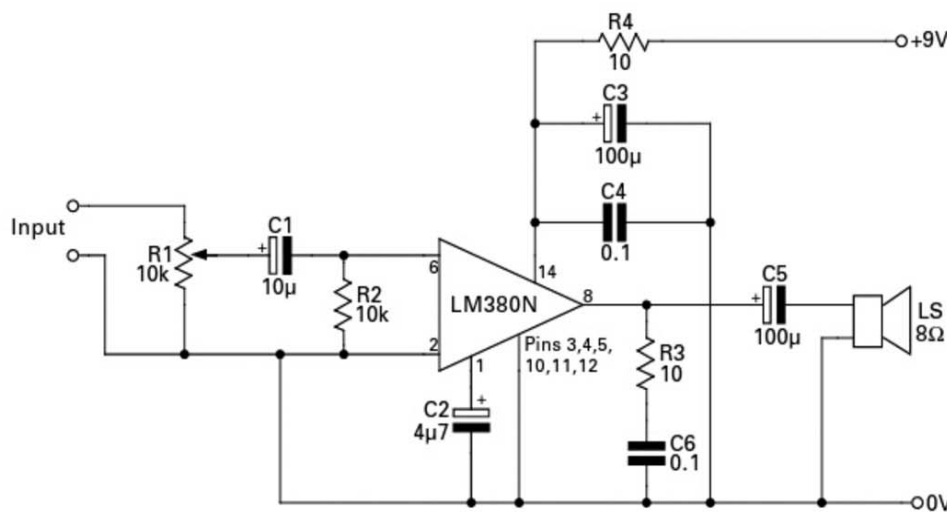
INTRODUCTION

A lot of the time, when you're building radio projects you are going to come across articles about projects fellow hams have built that only give you part of what you need in order to build the project yourself. What I'll be covering in this article is a simple process I use to create a Bill of Materials of the components needed to build a project or circuit that doesn't list the Bill of Materials.

I'm going to assume, you are familiar with schematic drawings and schematic symbols and can determine the various components, like resistors, capacitors, chips, transistors, etc. If you're not familiar with schematic drawings and schematic symbols, I suggest you checkout the ARRL Handbook published by the ARRL or the Beginner's Guide to Reading Schematics, by Stan Gibilisco.

THE PROCESS

Below is a schematic diagram for a simple signal tracer that we'll be building in a future article. It consists of a single LM380N amplifier, resistors, capacitors, a speaker, a 9 volt battery connector, and an input jack.



The first thing we want to do is build a Bill of Materials so we know what we have to gather together in order to build the circuit. We can then go to our junk box and pull out the components that we currently have and order what we don't. But, until that's done we have no idea what we need.

What I do is start at the top left of the schematic and list all the resistors by number and next to that I put the value. If the components are not numbered I will go through the schematic and number them as I write each one down. So grab a piece of paper and a pen and walk through the schematic and write down each of the resistors. Below is the list I came up with:

- R1 - 10K Potentiometer
- R2 - 10K
- R3 - 10
- R4 - 10

Next we will do the same thing for capacitors. Starting in the top left corner of the schematic we'll number and write down each capacitor and its value. This time it might get a bit tricky because you may see values but no indicator if the capacitor is a picofarad, nano farad, microfarad, etc. What I have found out is that by convention capacitors are usually given in microfarad values unless labeled otherwise and usually the schematic will state it. So using your piece of paper walk through the schematic and write down each of the capacitors. Below is the list I came up with:

C1 - 10 microfarad
C2 - 4.7 microfarad
C3 - 100 microfarad
C4 - 0.1 microfarad
C5 - 100 microfarad
C6 - 0.1 microfarad

We would continue this process until we've captured all the different types of components on the schematic. So using your piece of paper walk through the schematic and write down each of the remaining components in the schematic. Below is the list I came up with:

U1 - LM380N
SPKR1 - 8 Ohm Speaker
J1 - Mono Jack
J2 - 9 volt battery connector

One of things you need to keep in mind is where ever you see input or output terminals in a schematic you need to add a jack or connector to your Bill of Materials. This way you've accounted for any connections you might need to make to items outside the circuit. The connectors don't have to be jacks, they can consist of two pins or even a direct connection, whatever you decide you want to use to make the connection.

Two of the last things you'll need to add to your Bill of Materials will be a circuit board and a container, but until we get through the next stage of the build process we won't know the exact size we need. We'll go through the process of laying out the circuit board in our next article, then we'll know what size pc board and enclosure we need.

Until then 73s and I hope to catch you on the local repeater.

November Meeting Minutes

Recorded by Allyssa, KG5DAS

LARA Meeting Minutes 11/19/16

President Len Shipp KC5MPX, called the meeting to order at 8:07

Officers in Attendance:

- President: Len Shipp KC5MPX
- Vice President: Jim Lavin K5VZ
- Secretary: Allyssa Shipp KG5DAS
- Treasurer: Sharon Howard KE5JUI

Attendance:

Members:

- Walter Logan AG5CF
- Brian Ulmer KC5MPY
- Dan Howard KE5CIR
- Erick Guzowsky KO0M
- Tim Monk WZ5TM
- Lonnie Pringle KG5KNT
- Ron Ford KF5OMH
- Bob Burkett K5DCZ
- Dale Chatham WA5WNI
- Clark Highsmith K5LGX
- John Lundy KF5FOX
- Steve Kline W5JK
- Marty Wells KM5OI

Guests:

- Randy Kolar KG6WCA
- New Members Joined:
- Joe Magnusson N5PHY
- Mike Beck KG5QIY

Meeting Minutes from Last Meeting: Past meeting minutes were approved as posted on the website.

Motioned by: Jim Lavin K5VZ
 Seconded by: Steve Kline W5JK
 Approved by the Members

Treasurer's Report was given by Sharon Howard KE5JUI:
 Beginning balance \$2069.83. No Activity
 Motioned by: Erick Guzowsky KO0M
 Seconded by: Allyssa Shipp KG5DAS
 Approved by the Members

Technical Report as given by Len Shipp KC5MPX:
 .17 doing good.
 220 down currently
 Motioned by: Clark Highsmith K5LGX
 Seconded by: Dale Chatham WA5WNI
 Approved by the Members

New Business:

Old Business:

- Voted on meeting place
- Christmas Party vote
- Junk Box Pass Off -
- Event TShirts

Upcoming Events:

- Christmas Party Dec 10
- Everyone bring a gift \$20 or less and will be put into a stash for the whole club to choose from
- Holiday at the Hall and Communications with the North Pole Dec 3

Presentation on Our 220 Repeater by: Jim Lavin K5VZ

Motion to Close Meeting Made by: Allyssa Shipp KG5DAS
 Seconded by: Dale Chatham WA5WNI
 All Members Approved
 Meeting Closed at: 9:11

L.A.R.A. Officers

Position	Name	Email
President	Len Shipp	kc5mpx@gmail.com
Vice President	Jim Lavin	jlavin@jimlavin.net
Secretary	Allysa Shipp	allyssashipp@gmail.com
Treasurer	Sharon Howard	ke5jui@arrl.net
Technical Officer	Erick Guzowsky	zaphod1@swbell.net

A	L	A	M	O		M	I	S	T	S		H	T	S
W	I	D	E	R		O	N	E	A	W		A	I	L
O	M	A	N	I		L	U	C	I	A		M	M	I
L	A	R	S	O	N	E	R	A	P	P		V	I	N
			A	N	I		E	N	E		B	E	N	E
G	M	T		S	C	R		T	I	D	I	N	G	S
H	E	A	R		K	F	C			B	O	T		
I	M	P	O	S	S	I	B	I	L	I	T	I	E	S
			E	T	O		S	O	U		A	O	N	E
A	C	R	O	B	A	T		N	N	W		N	T	X
L	E	E	R		S	A	T		A	E	S			
I	R	C			Q	S	T	F	O	R	A	P	R	I
N	E	O			T	U	T	O	R		V	O	I	C
C	A	R			H	C	O	N	E		E	I	C	O
O	L	D			S	H	O	E	S		S	L	A	N

Area Repeaters

Courtesy: DCARA *EXCITER* Newsletter

Freq.	Shift	PL	Call	Name
145.1700	-.600	110.9	W5FKN	DCARA-Denton County EOC
145.2100	-.600	110.9	N5MJQ	Metrocrest ARA-Carrollton
145.4000	-.600	110.9	NETARC	Grapevine
145.4900	-.600	85.4	WD5U	Rosston Tower
146.9200	-.600	110.9	W5NGU	DCARA - Denton
147.300	+.600	114.8	N5ERS	Flower Mound
147.3800	+.600	110.9	K5LRK	LAARK - The Colony
224.000	-1.6	110.9		LAARK - The Colony
224.920	-1.6	110.9	AF5RS	AF5RS
441.3250	+5.0	88.5	W5NGU	Portable DCARA repeater
442.7500	+5.0	110.9	KA5R	Trophy Club
444.5125	+5.0	123	KE5UT	Celina
442.1750	+5.0	110.9	NETARC	Southlake
442.6500	+5.0	110.9	N5MJQ	Metrocrest ARA-Carrollton
443.3000	+5.0	110.9	K5LRK	LAARK-C4FM only
443.5250	+5.0	118.8	WA5LIE	DCARA - Denton
443.7375	+5.0	141.3	N6LXX	Rosston Tower
443.8750	+5.0	110.9	NETARC	DFW Airport
444.0500	+5.0	110.9	W5NGU	DCARA-Denton County EOC
444.2250	+5.0	110.9	K5CFD	Coppell
444.7000	+5.0	110.9	NETARC	Southlake
444.8500	+5.0	110.9	N5ERS	Flower Mound
927.025	-25.0	D532	N5ERS	Flower Mound
927.4125	-25.0	432	N5LS	Denton
927.6125	-25.0	110.9	W5NGU	DCARA-Denton County EOC
927.1375	-25.0	131.8	W5FKN	Decatur
1253.6000	none	none	W5NGU-G	DCARA - EOC - D*Star "G"
1293.4000	-20.0	none	W5NGU-A	DCARA - EOC - D*Star "A"
442.9250	+5.0	none	W5NGU-B	DCARA - EOC - D*Star "B"
147.4500	-1.0	none	W5NGU-C	DCARA - EOC - D*Star "C"
1259.2000	none	none	KE5YAP-G	DCARA-Rosston- D*Star "G"
1293.2000	-20.0	none	KE5YAP-A	DCARA-Rosston- D*Star "A"
440.7125	+5.0	none	KE5YAP-B	DCARA-Rosston- D*Star "B"
147.4900	-1.0	none	KE5YAP-C	DCARA-Rosston- D*Star "C"
DIGITAL	====	====	=====	=====
144.9100	none	none	W5NGU-4	DCARA Digipeater-Denton
147.970	none	none	K5YX-10	WinLink Gateway
144.990	none	none	KC5GOI	DCARA Digipeater-Rosston
144.990	none	none	KD5EOC-10	DCARA WL Gateway