THE COMPASS

Official Newsletter of the Great South Bay Amateur Radio Club

March 2017 | Volume 45 | Issue #3

Upcoming Club Events

Next General Meeting: Thurs. Mar. 30th, 8 PM at the EOC

GSBARC's FREE License Classes Tuesday nights 7–9:30 PM.

Amateur Extra License Currently Running

In Memory of Terry, K2TRC

A group of her friends has purchased a bench with her name to be dedicated on Sat., May 20, 2017. This will be 4 days after the first anniversary of her death. A group of friends is meeting on the dock at Kismet, F.I. at noon and will walk to the tennis courts where the bench is installed and do a balloon launch. They will then head over to The Kismet Inn, 1 Oak St., to raise a glass or two in her memory. Her friends are extending an invitation to join them on that day. All are welcome! Mark your calendar.

Open Houses on Wednesday nights from 7:30 to 9:30 p.m. and also Saturdays from noon to 3 p.m

Visit us on Facebook at www.facebook.com/gsbarc

Some pictures from the set of the "Last Man Standing" Television show starring Tim Allen. You might recognize some of the QSL cards on KA0XTT's shack wall. Watch the show on ABC on Friday Evenings at 8 PM Eastern time and see whose QSL card appears. You might even be able to work the station which uses the club call KA6LMS and is on the air with visiting operators from time to time while the show is in production.

Inside this issue of The Compass...

Upcoming Special Events

American Air Power Museum, May 20-21

Field Day: June 24-25

Maggie Fischer X-Bay Swim: July 14th

President's Message

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March is here! As you know, I work outside 90 percent of the time—so spending a week cruising around the Caribbean on the Harmony of the Seas – the world's largest cruise ship – was just what I needed. Now, back to reality! It's always great to come home and sleep in one's own bed. As I write this, the ARRL DX contest is well on the way. I want to thank K2TV for getting all the information to the ARRL. We are now an official contest club as well as a special services club.

To all of the up-to-date dues-paid members, you can enter a contest and there is a spot to add our club name: It is Great South Bay ARC. To all who jumped into the contest, good luck and hope you had some fun. To those just getting into the hobby, come on down to see how it is done. You must be a paid member to do this, as rules have changed and we had to send everyone's call sign to the ARRL to comply for the status.

All members please make sure we have your correct contact info. We need to update our records.

To all ARES members: We are going to set up a text alert system in the near future so it is important that we get your cell phone number and correct email address as well.

KB2UR 440 is back up in the beta mode at 446.775 MHz 110.9 pl. The new 2 meter repeater, with a bunch new features, is being tested and programmed along with a remote receiver for those bad spots for HT coverage on the south side. The Selden repeater is being put together. It will be a DSTAR UHF repeater linking to 20A so now when driving out east you can talk all the way to our friends in Philadelphia and beyond.

As you know, our club meets in the EOC in the basement of Babylon Town Hall. Please, when attending meetings and open houses or other events, make sure you ring the top door buzzer (not the bottom one). Also if you have a disability, please use the west side entrance. It has a ramp. Please give us a call on the repeater so we can be ready to get you in. There is an elevator to assist your trip down to the EOC. You can also give us a call at 631-957-4246.

I know I always say it but…..Field Day is not too far away!! So we really need to start checking out all our gear to make sure we are ready and have a smooth setup and operation. Once we start to get warm weather, we will once again check all feed lines and connectors also we will do a setup of the shelters. I would like to mark them a little better and match up the replacement parts as needed.

As we continue to grow, we help others get into amateur radio. I am very proud of all the members who take part in the process. You are the reason why GSBARC is a great club. Looking into the future of our great club, I see lots of good things ahead. One thing we are starting to work on is a remote station for our members. Yes, you read it right: We are looking into it! Please remember: Rome was not built in one day—so be patient. There is a lot of pre-planning before it actually happens. Our next special event will be at the American Air Power Museum in Farmingdale, May 20th -21st. I hope to see a lot of you there. I know we have a crew headed to Dayton Hamvention too this year. I hope you all have fun no matter what you do. It's important to always have fun!

One last thing: Don't forget about our annual raffle. Will you be the winner of a new DSTAR radio? It's an ICOM 5100A. You might also win the VHF DSTAR DVAP or a BaoFeng dual band radio, but you have to get a ticket to get a chance. See anyone on the board to get yours—$5 gets you a chance.

To all members who have not paid your 2017 dues, please make sure you do it!! We have dropped unpaid members from our database to keep it up to date. I know sometimes life gets in the way. So if you forgot, no problem! Just visit the website or mail the dues into us or take care of it at any open house or meeting.

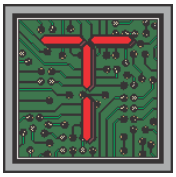
Meanwhile, get on the air and be heard! Have some fun, stay safe and—heads up, the warmer weather is coming! Time for outdoor fun! Antenna parties are always a lot of fun so if you need help with an antenna, let us know. We have a crew that loves to put up antennas and then use great equipment to help you tune it just right. Trust me – it's the way to go!

73, John Melfi, W2HCB

In the Classroom with AB2ZI

Conductance

By Kevin, AB2ZI



eaching amateur radio classes keeps me thinking of different way to explain many of the concepts presented in the topic of electronics. One of the concepts that seems to really confuse students when they get to the Amateur Extra level are the ones presented in chapter 4 of the Extra Class License Manual; specifically the concepts of admittance (Y), susceptance (B) and conductance (G).

These quantities are reciprocals of others that you already are familiar with: admittance is the reciprocal of impedance, so 1/Z, susceptance is the reciprocal of reactance 1/X and conductance is the reciprocal of resistance, 1/R.

I believe a discussion of resistance and conductance will serve to shed a light on the concept of a reciprocal quantity and why we use them so we'll only look at them for this article.

From your first license, the Technician, you should be familiar with the fact that **resistors in series add together**. In a series circuit, there is only a single path for current to travel from the source (a battery, ac voltage or other signal) through the components and back to the sources opposite side. For a battery, this would be the electrons traveling from the negative terminal around to the positive (or vice versa if you are a fan of conventional—positive to negative—current flow).

You can visualize this as a file of people walking down a corridor. If there is a narrowing of the walls, your progress will be slowed. The more restrictions we add (more resistors) the less the rate of progress through the corridor. We see this with current in a circuit. If there are 10 Ohms of resistance and 10 volts pushing the electrons then by Ohm's law (I = E/R) we can expect 1 ampere of current flow. If we add another 10 Ohms in series with that first resistor we now have 20 Ohms of resistance and our current is down to 1/2 or 0.5 amperes.

So what happens when we have a parallel circuit? If we again begin with just our single 10 Ohm resistor with 10 volts applied we see our 1 amp of current flow. Now however, if we add a second 10 Ohm resistor, this time in parallel with the first, we have given the current a second path to follow. Think again back to our file of people walking down a corridor. By adding a second corridor we can get twice as many people through. Adding a third path in parallel increases the current even more, thereby reducing the amount of overall resistance. For resistors in parallel we therefore cannot just add them together because we are not adding resistance, we are adding *conductance* paths! The formula you learned for adding resistors in parallel (the main one) was called *the reciprocal of reciprocals* formula which was written:

$$\frac{1}{\frac{1}{R_1}+\frac{1}{R_2}+\frac{1}{R_3}\ldots}$$

Since conductance (G) is 1/R, we can rewrite this formula as the reciprocal of conductances:

$$\frac{1}{G_{R1}+G_{R2}+G_{R3}\ldots}=\frac{1}{G_{Total}}\ and\ \frac{1}{G_{Total}}=R_{Total}$$

In parallel the conductance are added together and the reciprocal of that total is taken to find the total resistance (remember, since G = 1/R then R = 1/G).

The reason chapter 4 makes everyone's heads explode is that when we have parallel *reactive* circuits, that is circuits with capacitance and/or inductance with the components in parallel, we have to not only take into account the conductance of the circuit, but also the reciprocal of the reactance which has a phase shift introduced between the current and voltage (ELI the ICE man). This means that instead of just a straightforward reciprocal of reciprocals type calculation, we also have to deal with phase angles being introduced and this results in having to do some right-angle trigonometry to find the solution to impedance. The intermediate step is called an admittance calculation and when we take the reciprocal of the reactance (1/X) this results in a sign change of the angle involved. So if the reactive part of the circuit is inductive, the phase angle changes to a negative angle which is the sign for a capacitive reactance. But remember, when we take the reciprocal of the reactance we no longer have a reactance, we have a *susceptance, B!* Following the admittance calculation we then find the impedance of the circuit by taking the reciprocal of the admittance (1/Y = Z) and changing the sign of the phase angle to its opposite. So that negative angle I just mentioned would return to a positive angle which properly matches what is expected for an inductive circuit.

I hope this helps and doesn't cause any undue confusion. There are many ways to picture all of these concepts. Find the one that works best for you and remember, the more you practice the more familiar you will become with them and soon it will all be second nature to you.

73 and see you in class.

Why are there so many Techs?

By Dan Romanchik, KB6NU

Recently, one of my readers asked, "Why do most people have a Technician license and not a General or Extra? Is it simply not interesting enough to get more privileges?"

This is a very interesting question, one that I've written about before. I think there are several issues at play here. In no particular order:

- It's pretty easy to get a Tech license, so a lot of people get them just for the challenge, but really never intend to use the license.
- Some people get a Tech license, but then find out that amateur radio isn't what they thought it was going to be.
- Some people get a Tech license, then can't find an Elmer to help them. They lose interest and give up on ham radio.
- Some people get a Tech license, buy an HT, and think that's all there is to amateur radio. They quickly lose interest in amateur radio, because talking on the repeaters just isn't all that interesting.
- Some people get licenses to participate in local emergency communications or CERT organizations. There's no need for them to get anything more than a Tech license.
- Since it's so easy to get a Tech license, even those that aren't technically inclined get them. Getting a General Class license requires a fair amount of study, and because they don't see the benefits of putting in that kind of work, they just don't bother.

I posted this question to my blog and got several interesting replies. Perhaps the most cogent was by Kenneth, W6KWF. He wrote: "The only thing General/Extra gets you is HF, which is becoming an increasingly small fraction of the possibilities of the amateur hobby. Amateurs could easily spend their whole lives moving from FM repeaters to microwave to VHF packet to EME to CERT/event support, etc, etc, without having any interest to explore what few facets of the hobby need HF privileges."

I think this is a great point. When incentive licensing was put into place in the late 1960s, HF was where the action was. Nowadays, more of the "cool stuff" is happening on VHF, UHF and microwaves. Getting additional HF privileges is not really a big deal anymore for many hams.

Yet another new license class?

Right on the heels of this discussion, the ARRL posted a news item, "ARRL Seeks Opinions Concerning Possible New Entry Level License" (***http://www.arrl.org/news/arrl-seeks-opinions-concerning-possible-new-entry-level-license***). According to this report, the ARRL Board of Directors set up an An Entry Level License Committee in September 2016.

The committee is gathering member input via an online member survey (http://www.arrl.org/license-1) and will make recommendations to the Board for possible rules changes to submit to the FCC. They note, "The result could mean changes to the Technician license, but it could also be an additional, but simpler, license with privileges that would give a newcomer a taste of most facets of ham radio from HF to VHF and UHF. The survey will be online until April 7, 2017.

According to the survey page, the committee is trying to address several issues, including:

- The declining population of new hams under the age of 30.
- A decline in the number of new licensees who actually get on the air.
- Amateur Radio's lack of appeal for those under the age of 30, compared to other technical hobbies.
- The increasing challenge of engaging and retaining Technician licensees.
- A reluctance in much of the amateur community to embrace newer technologies of interest to the younger segment of the population.

Personally, I don't think that coming up with a new entry-level license class with privileges that are even more limited than the Technician Class is a bad idea, but whether or not it's successful will depend completely on the implementation. Unless the new class of license is accompanied by some kind of program that will help these new licensees really become engaged with amateur radio, then we're just creating another class of inactive licensees.

Continued on page 5...

Inside the Squirrel Cage

by Caryn, KD2GUT

Each time a QSL card arrives in the mail, I experience a Hallmark moment. But QSL cards are better than their equivalents from the commercial greeting card giant: birthday cards, Christmas cards or even Valentine's or Halloween cards are outclassed by these amateur radio missives. The cards are not just a confirmation of contact and signal strength, they're a celebration of communication and they number among the party favors you receive simply for showing up on the bands in Cuba, Slovakia, Hawaii, or just across the state line wearing your party headphones and keying your mic. Whether they are artsy, biographical or solidly boilerplate, it doesn't matter: These cards are all welcome arrivals in the mailbox.

Imagine my surprise, then, when a QSL-sized card of a different sort turned up late last year following a successful long-distance communication I didn't even know I'd had. This was a yellow and green ARRL Radiogram. The card, classified "routine" in its priority, acknowledged receipt of contact I'd made with an amateur in Cumberland, Indiana. The ham was thanking me for a message I sent in a decidedly terrestrial manner: within the printed pages of QST magazine's November issue. He was moved by the story I wrote about our GSBARC team's NPOTA activation of the White House. (Be proud, be very proud – go team!) And he wanted to say thank-you for both the activation and the story. The Radiogram made its final leg of the journey to my home in Suffolk County via the amateur in New Hyde Park who handled it. It's the first – perhaps the only? – Radiogram I may ever receive in this era of cellphones, easy texting and, of course, the Internet. Perhaps the Indiana amateur had none of these avenues or simply preferred a more traditional route.

The Radiogram has now taken a place of honor among my ever-growing collection of QSL cards. For me, it is one of a kind and perhaps even a throwback to a time when we had fewer options to acknowledge one another's messages. There will probably always be Hallmark, of course, when you "care enough to send the very best," as their slogan says. But I'll keep doing things old-school for now and watch the mailbox which, without fail, always seems to bring the very best.

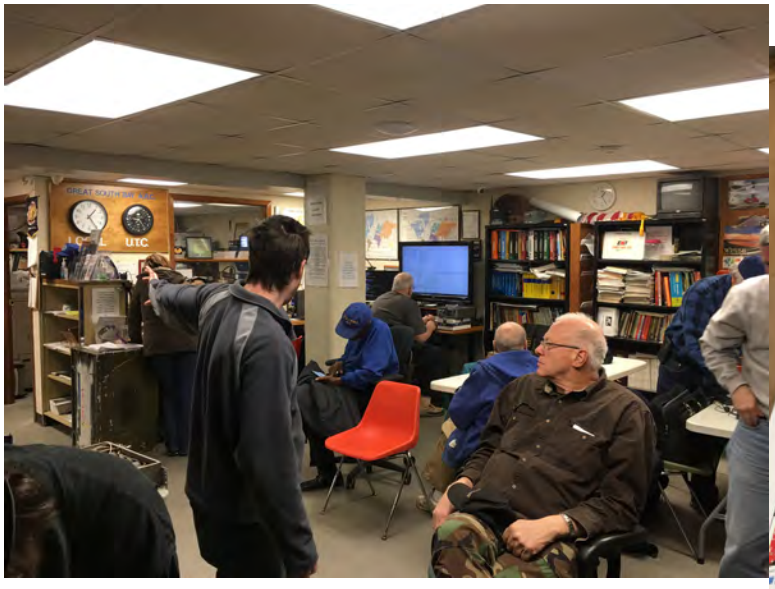
KB6NU: Why so many Techs? ***continued from page 4...***

I don't know exactly what this program would consist of, but without it, this effort is doomed to failure.

And, who's going to develop and run this program? The only organization that has the horsepower to make this work is the ARRL. They are going to have to step up big time. Most clubs don't have the people or resources to do it properly. If you have any thoughts on this, I urge you to contact your ARRL division director (***http://www.arrl.org/divisions***).

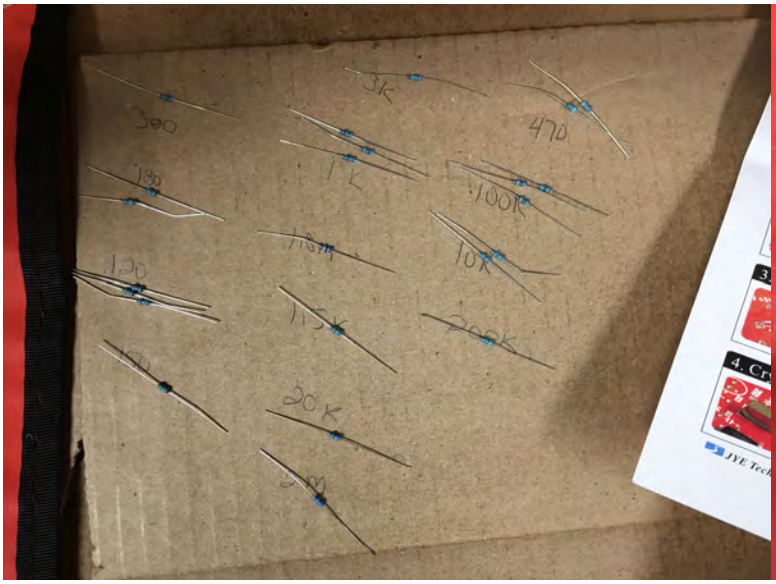
When he's not pondering questions about the amateur radio licensing structure, Dan blogs about amateur radio at KB6NU.Com, writes the "No Nonsense" amateur radio study guides and teaches ham classes. You can contact him by e-mailing cwgeek@kb6nu.com.

Open House & Kit Nights at Great South Bay ARC's EOC

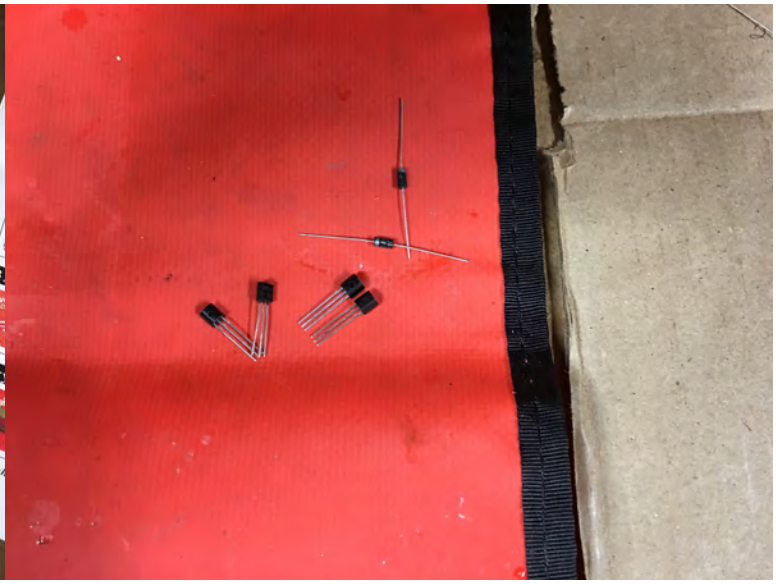


Below, the latest club kit building project: The JYE DSO138 200 kHz Oscilloscope

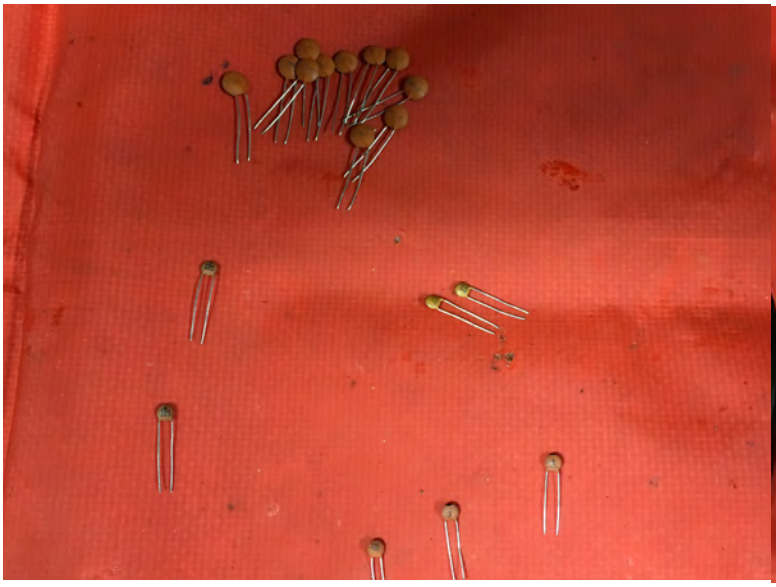
First things first: READ the instructions! Then lay out your tools and start sorting parts...

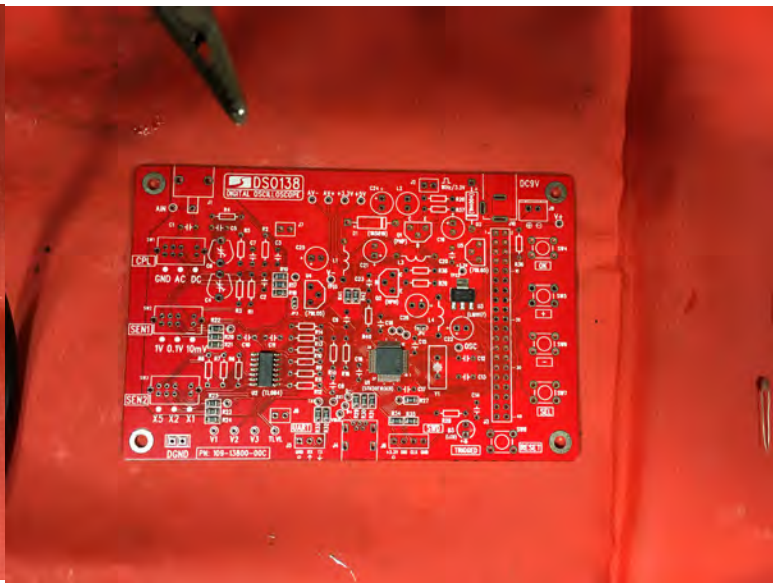


These tiny resistors are almost impossible to read color codes on, so all are measured and sorted while checking against the main parts list.

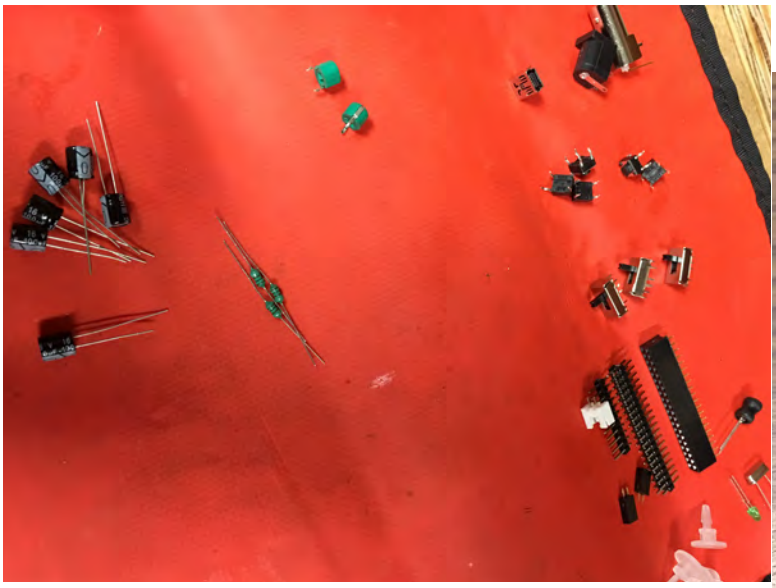


Use caution with these parts. There is a +5 and -5 volt regulator, an NPN and PNP transistor and 2 different diodes! Identitfy all your parts!

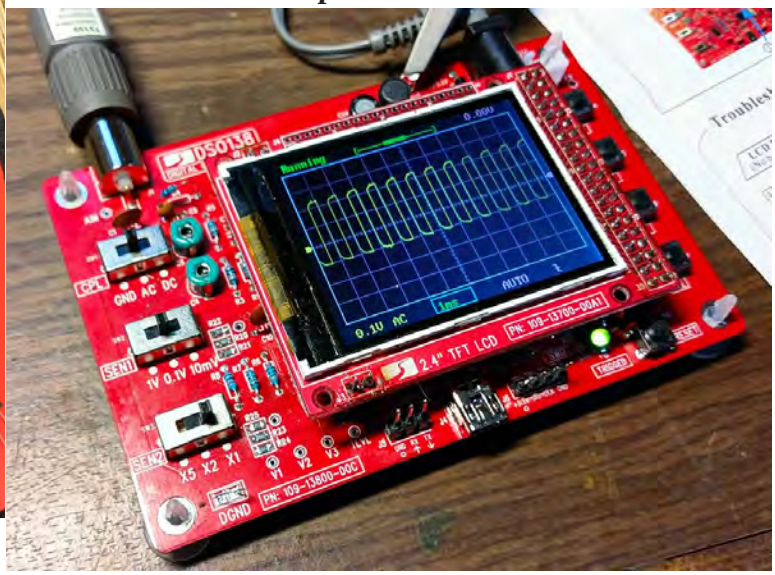




The version of the kit we bought already had the surface mount components on the board.



Capacitors are also measured and sorted as well as several inductors and other miscellaneous parts.



A couple of hours of soldering and we're up and running!

YAHOO!

GSBARC has a New Yahoo Group and the old one has been deleted

If you are a member in good standing and want to join the club's new Yahoo group, go to:

https://groups.yahoo.com/neo/groups/gsb-arc/info

and click on "Join Group" Be sure to add a note when filling out your information with your call sign so we know who you are!

Club Apparel

Want a shirt, jacket, hat, sweatshirt or t-shirt with a Great South Bay club logo? We now use *Mr. Shirt*, located at 80 East Montauk Hwy in Lindenhurst (*www.mrshirt.com*). Now you can get color matched backgrounds on your logo too. Check them out...

ARES/RACES Information

Div. 1—Town of Babylon ARES/RACES
Net: 146.685/R, Mondays 8:15 PM
EC/RO: John Melfi, W2HCB, (631) 669-6321
Div. 2—Town of Huntington ARES/RACES
Net: 147.210 MHz +600/ PL 136.5, Mondays 7:00 PM
EC/RO Steven W. Hines, N2PQJ, (###) ###-####
Div. 3—Town of Islip ARES/RACES
EC/RO: John J Blowsky, KB2SCS, 631-467-2410
Div. 4—Town of Smithtown ARES/RACES
Net: 145.430 MHz, PL136.5, Mondays 7:30 PM
EC/RO: Joe Albertus , KB2JOE, 631-664-6709
Div. 5—Town of Brookhaven ARES/RACES
EC/RO: Ted Debowy, AC2IR, 631-751-6576
Div. 6—Riverhead ARES/RACES
EC/RO: < Unknown — no longer in state. >
Div. 7—Southampton ARES/RACES
EC/RO: Dennis O'Rourke, KB2ZWW, 631-728-5424
Div. 8—Southold ARES/RACES
EC: Don Fisher, N2QHV, 631-765-2757
RO: Charles Burnham, K2GLP, 516-779-4983
Div. 9—East Hampton ARES/RACES
EC/RO: Nat Raynor, N2NEI, 631-324-3738
Div. 10—Shelter Island ARES/RACES
EC/RO: Neal Raymond, N2QZA, 631-749-9330

Suffolk County ARES/RACES Net:

Mondays 2100 Local - 145.330/R (136. 5PL)
Alternate Frequency - 145.370 (136.5 PL)

New York State RACES Net (HF)

Sundays 0900 Local, 3993.5 KHz LSB

2017 VE Session Dates

- March 25th
- April 22nd
- May 27th
- June 17th
- July 22nd
- August 26th
- September 23rd
- October 28th
- November 25th
- December 23rd

All sessions are at the Town of Babylon EOC at 10 a.m., located in the basement in the rear of town hall. Please bring photo ID, a copy and your original amateur radio license (if you have one), and any CSCE's you may have. Non programmable calculators are allowed. The exam fee is $15 payable by cash or a check made out to "ARRL VEC".

Visit FCC Universal Licensing System site to register for an FRN number to use on the paperwork.

GSBARC Free License Class Schedule:

Amateur Extra: Feb. 7th thru May 23rd.

Note: All Classes Tuesday evenings from 7 to 9:30 PM. Class text book is the current ARRL License Manual for that level. For more info email Kevin, AB2ZI at kmorgan6@optonline.net

Club Name Badges

Club name badges are available from ***The Sign Man (www.thesignman.com)*** of Baton Rouge, LA.

The badges which are 1-3/4 in. x 3 in. If you visit The Sign Man's webpage you can order the badges by using a drop down selection on the orders page and clicking on "Great South Bay ARC - NY"

2017 Annual GSBARC Field Day Raffle is here!

Prizes for 2017 are:

1st Prize:
ICOM ID-5100
VHF/UHF Transceiver

2nd Prize:
UHF Digital Voice Access Point (DVAP)

3rd Prize:
BTECH/Baofeng UV5X3 Tri-Band HT

Tickets are $5 each or a book of 5 for $20

Winner Need Not be Present to Win.