

# NEWSLETTER

JUNE 2010 VOLUME 10, No. 6

Mercury Amateur Radio Association - MARA - North America - North East



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E-mail your comments, ideas, or submissions to [marane@mara.net](mailto:marane@mara.net)

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# VIEW from the TOWER



No one appears to be home  
this month!

## Grandma Mara's RAMBLINGS

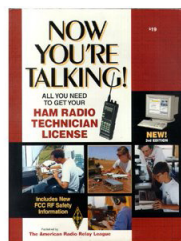
My interest in ham radio developed at a young age, primarily because of my grandfather. He was one of these people who could fix just about anything. He had a room in the garage full of old radio gear that made such interesting noises. The fact that he could understand the squeaks and squawks, and I couldn't, drove me to learn the code before I hit my teen years! Mind you, my CW's gotten a bit rusty since those days as I don't use it as much as I used to. Even after all of this time, I can still remember, with great fondness, the sounds and smells of his shack.

A new family moved in down the block this past winter. They have four kids - the oldest are twelve year old twins, a girl and a boy. The boy is wrapped up in his video games and sports but the girl waves when she sees me. She stopped to talk one Saturday afternoon when I was out putting up a two meter antenna. She asked questions about what I was doing, so I explained basic ham radio to her. She asked more questions. I gave her more answers.

I figured that was the end of the interest but I was mistaken. A week later there was a knock at the door and there she was with another woman, an older version of herself. Her mother apologized for bothering me and said that Wendy, her daughter, had nagged her all week to bring her over to see my radios. So she got her wish and I gave them both the tour of the radio room and demo'ed what the stuff did.

We listened to some CW between a VK4 (Australian) and a W6 (American) and a three-way sideband QSO consisting of a VE1 (Canadian), an HB9 (Swiss) and a CP1 (Bolivian), all on 20 meters. I explained to them that English was *the* international radio language. We also heard a 2 meter conversation on the local repeater and then I let Wendy tune around the HF bands, while her mother and I talked. Seems that her daughter liked tinkering with things to find out how they worked. Occa-

sionally, her mother said, she even managed to fix something. When they left, after having milk and chocolate cake, I gave them a copy of the short video **Amateur Radio Today** and the book **Now You're Talking**, both by the [ARRL](#).



# CULTURED CORNER

by ANØNMS

## A JUNE POEM

*The usual words  
that rhyme with June  
do not oft make  
good radio tunes.*

*It's hard to make them  
fit so sublime,  
to line them up  
and make them all rhyme.*

*Words that fit with June,  
like swoon and prunes,  
do not go well  
with radio tunes.*

# TECH STUFF

By VE1VQ

## THE AUDIO SIGNAL TRACER - PART 2

Some years ago, I worked for a company that manufactured sonobuoys for the Canadian and American armed forces. At least once a year we would go for a two week (all expenses paid) cruise out on the Atlantic aboard a Canadian research ship to test new ideas in submarine detection. On one of these trips the senior government scientist and I were in the lab late one night as the ship drifted (one of the few times I wasn't seasick), monitoring and recording the audio transmissions of several sonobuoys on multi-track tape. He made the statement that despite all of the fancy equipment we had with us, the best available was a old lab-built rack mount audio amplifier with a speaker, connected to the output of the VHF receiver allowing us to hear what the sonobuoy was 'hearing'. He said that actually hearing what was happening was worth more than all of the other stuff put

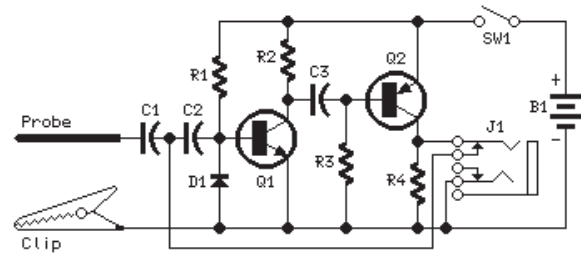
together.

And so it has been over the years. Actually hearing what is happening in a circuit has been of great benefit in locating and repairing the problem. The combination of your ears and brain is indeed a marvelous piece of test equipment.

Today it seems like nothing gets repaired at the parts level. More and more it is module (or entire unit) replacement, with the old one going in the landfill.

## MODERN AUDIO TRACER CIRCUITS

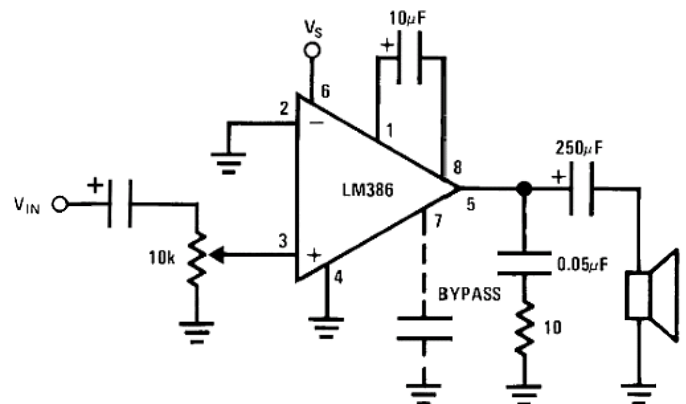
Unless you are into the restoration of old tube test equipment, everything is solid state for good reason. Now you can have a piece of test equipment you can hold in



your hand and run off a battery or two for a reasonably long time.

The circuit shown above is a probe style tracer for use with an earbud or a headset. Not one I would greatly recommend as touching a circuit point with a large signal could be very hard on your hearing! That said, it also has a second function as a sound source to inject audio into a circuit. Two functions in one circuit is rather a neat idea.

A much better design is one with a speaker output and there are several designs around for these. The most common one uses the readily available [LM386](#). The input capacitor blocks any direct current (DC) voltage present and should be of sufficient voltage rating for what-ever



circuits you intend to work upon. If all you plan to be testing are solid state circuits then a 50 volt DC rating is sufficient. If in doubt, measure the circuit with your voltmeter to be sure. If the measured voltage is higher than your choice, use an external capacitor to protect your tracer. Some circuits show the input capacitor as non-polarized, and I suppose if this were a high fidelity amplifier it would be better design. Since this is only a minimal parts low power amp, the use of a more common polarized capacitor is fine. Its value may be anything from 10 to 50 mF. The variable resistor following the capacitor is hardly critical and can be any value from 10k up to 500K ohms. The supply voltage (Vs) can be between 4 to 12 volts DC. This makes it handy to use a 9v battery. No supply circuit is shown but it is common practice to have a filter capacitor on pin 6, especially if you use a wall wart supply. If you elect to use only a battery then the capacitor is not needed (although it is good design practice). Something in the range of 10 - 100 mF is fine. The capacitor between pins 1 and 8 sets the amplifier at its maximum amplification with a gain of 200. Not using it will reduce the gain equal to 20 times. The series capacitor and resistor off the output pin 5 acts as a filter to reduce high frequency audio hiss that can be annoying over long listening periods. The 250 mF capacitor couples the amplifier output to the speaker and prevents a DC short circuit at the amplifier output pin. The large value for this part provides for better low frequency response.

## HOUSING

I built my LM386 amp in a nice small [Hammond](#) metal enclosure but unless you require the metal for shielding there other less expensive options available. Look around for an old small set of cheap computer speakers; the really old ones that are cube shaped, not like the aerodynamic designs of today. These can usually be gotten for free, or next to nothing at a yard sale. Besides a nice housing, they also come with a built-in speaker! Use the one with a volume control if you can, as it comes pre-drilled. Measure the resistance of the control and if it falls in the 10k - 500k ohm range you can even re-use it (another victory for recycling!).

I'd had the LM386 version for years but it ended up as a piece of equipment one of my staff used more than I did, so it became part of his tool kit. About that time, I saw an article in QST for a more modern one built with surface mount technology. I'll cover that version in next month's column.

**ANY TIME YOU WORK ON ACTIVE EQUIPMENT,  
ALWAYS BE VERY CAREFUL AND OBSERVE  
ALL NECESSARY SAFETY PROCEDURES!**

## QUOTE OF THE MONTH

*When I stand before God at the end of my life, I would hope that I would not have a single bit of talent left, and could say, "I used everything you gave me".*

*Erma Bombeck*

## NOTICE BOARD

### ANNUAL MEETING

The 2010 annual meeting of the Mercury Amateur Radio Association North East will be held on June 5th at the Camp Hill / Carlisle Ward Building at 216 Skyline Dr in Mechanicsburg, PA

Our host this year is Mike KN4EE.

Meet and greet will start around 9 am with the meeting itself beginning around 10 am.

Lunch will follow sometime around noon.

RSVP to Bruce N3IA at [bruce@bwortmann.com](mailto:bruce@bwortmann.com)

For directions, go to [GOOGLE MAPS](#) and type in the address.

### ARRL FIELD DAY

**June 26-27, 2010**

ARRL Field Day is the single most popular on-the-air event held annually in the US and Canada. Each year over 35,000 amateurs gather with their clubs, friends or simply by themselves to operate.

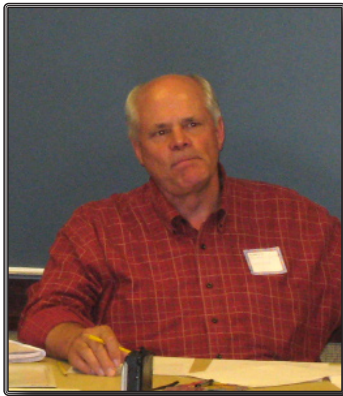
See the [ARRL website](#) for details.

# DI DAH DI DAH <sup>D</sup><sub>T</sub>

## SILENT KEY

**SHIRREL R. YOUNG N3DIX  
(5/9/2010)**

**S**hirrel Roger Young, 64, of Mechanicsville, Md. passed away May 9th at his home. He is survived by his wife, Susan Young, his four daughters, Kristin (Dalton) Rawson, of Lawrenceville, Ga., Melissa (Ken) Stephenson, Brittany Biggs and Tiffany Young, and his four Step-Children Ginny (Joey) Ritenour of Newport, VA, Jill (Tom) Hedrick of Mechanicsville, MD, Allison (Eric) Dussault of Old Saybrook, CT and Jeffrey Zumwalt of Annapolis, MD. He



is also survived by ten grandchildren including Payton, Brinley and Dallen Rawson and four step-grandchildren Miles Ritenour, Tucker and Cooper Hedrick and Dustin Dussault. His parents, Shirrel and Rose Young of Provo, UT and his eleven sisters, Rosalie, Laurel, Afton, Miriam, Naomi, Janice, Melanie, Vella, Toni, Tammy and Kim and their spouses, 69 nieces and nephews and many great-nieces and nephews survive. He is preceded in death by his son, Shirrel Russell Young.

As a young man, Shirrel served the Lord by serving an honorable two-year mission in the Southern States Mission and attended Brigham Young University in Provo, UT. He was a veteran of the U.S. Navy Submarine Service and U.S. Naval Reserve. In 2005 he retired from Static Power Conversion Services in Columbia, MD and became a school bus driver for St. Mary's County Public Schools. He and Susan enjoyed camping and entertaining friends and family in their home and were looking forward to living in their new retirement community in

Magnolia, DE. He was an active ham radio operator, motor cycle rider and loved flying and all aspects of aviation. Shirrel loved serving the Lord and he loved his family.

Viewings were held at The Church of Jesus Christ of Later Day Saints, 4560 Padgett Road in White Plains, MD on Monday, May 17, from 3:00-5:00 pm and 7:00-9:00 pm. And also on Tuesday, May 18, from 9:00 am until the time of the funeral service at 11:00am at the church. Interment will be at the Maryland Veterans Cemetery in Cheltenham, MD.

Memorial contributions may be made in his honor to the General Missionary Fund of The Church of Jesus Christ of Later Day Saints, 4560 Padgett Road, White Plains, MD 20695 in care of Bishop Michael Vance.

Shirrel, your MARA ham radio friends will miss you.