



# Key Klix April 2026

The Monthly Q-S-T of the  
 MERIDEN AMATEUR RADIO CLUB & WALLINGFORD AMATEUR RADIO GROUP

## MARC 2026 MISSION STATEMENT

**To create** an engaging space for members to explore the science and enjoyment of amateur radio, to support the community's emergency needs (Town OEM) and to provide hands on training for members and prospective radio amateurs.



**JOIN US FOR CW PRACTICE EVERY SATURDAY AT THE OEM!**

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*"It's the Radio News that's fun to use"*

## YOUR 2026 OFFICERS

*President*



**DAVE TIPPING**  
 NZ1J

*Vice President*



**BILL HUGGINS**  
 NR1B

*Treasurer*



**GEORGE BUCCI**  
 AC1SK

*Secretary*



**JULES LORUSSO**  
 KC1STF

*Station Manager*



**ROB CICHON**  
 K1RCT



# GETTING INVOLVED

## *The President's Post, by Dave, NZ1J*

Talk about getting more involved with ham radio and with MARC are probably the things that are most often repeated in this column. I'm back, prodding members to get more involved, because these nudges are often successful.

Last year, in the build up to Field Day, some members got on the air more and some ventured into FT8. There has also been a pretty steady growth in interest in CW and attendance on Saturday mornings.

Field Day is now three months away and I'll be regularly trying to get more members involved. I know that some members live thousands of miles away from CT and others have so many commitments with work and family that they really don't have time for ham radio. On the other hand, the club has a lot of retirees who just might have some time available.

So, here's the message that you've heard before - again. Try to carve out a little bit more time for the hobby and for the club. Pencil in a half hour during Field Day weekend to visit and eat a hot dog. Ride along on a Fox Hunt or hide along with the Fox. Stop by on a Saturday morning. Hunt some POTA stations from home. Join some of us for a POTA activation in a park. Join the club's groups on or Facebook Group.

I'll close with 'the big ask'. Field Day is great in many ways. We do a lot of radio. We show off the club. We socialize. AND, we eat. It is an indisputable fact that well-fed hams are both happier and more productive. But getting all that food to all those hams is a big job. As far as I know, John B. was the only one who was ever able to do it single-handedly.

For this year's Field Day, we're actively seeking volunteers for this vital role. If you're willing and able to grill hamburgers for ½ hour, you will be among the most appreciated volunteers in the club. We have a similar need for volunteers for Sunday breakfast. Please consider what you might be able to do.

Dave NZ1J



**HEY THERE  
YA OLD FOOL...  
THE WEEKEND  
IS COMING!**

*Do you know which  
contests will be  
on the air?*

*See page 33 for our list  
of April Contests &  
Special Event Stations!*

### **MARC VE Sessions**

MARC holds a VE Session on the second Saturday of the month at 9AM at 143 Hope Hill Road, in Wallingford. Exams are paperless and require a PIN from [www.hamstudy.org/](http://www.hamstudy.org/) prior to the exam date.

For more info, contact Jim at [N1ZN@arrl.net](mailto:N1ZN@arrl.net), or Bill at [zz71818@hotmail.com](mailto:zz71818@hotmail.com).





# HamX - The Northeast HamXposition

August 13-16, 2026

## Call for Speakers

HamX (<https://hamxposition.org/>) is the largest amateur radio convention in the Northeast! With close to 1,800 attendees each year, HamX draws radio amateurs from all over and is an ideal venue to present your ideas and experiences. It has the largest array of forums of any ham event in the country.

This is a call for speakers on topics of general interest to the amateur radio community. Some examples include: Operating practices, contesting, DXing, mobile stations, emergency communications, emerging activities, STEM outreach, club improvement, radio history, restoring antique gear, test equipment, kit building, antenna design, AI in amateur radio, VHF/UHF/Microwave/Mesh, EME and more. If you have a story to share, we would like to hear about it.

To submit a talk proposal, please go to the following website and enter the requested information: <https://registration.hamx.org/speaker/> If you are a first-time visitor to the site, please pick a username and enter it in the Username field to create an account.

If you have any further questions, please reach out to the program chair at the e-mail address listed below.

We look forward to your contribution at HamX 2026!

Mark Noe KE1IU - [ke1iu@hamx.org](mailto:ke1iu@hamx.org)

HamX Program Committee Chairperson

### THE NUTMEG HAMFEST ALLIANCE

*Invites you to the*

### NUTMEG HAMFEST TOWN HALL

*Thursday, April 23 - 7-8 pm*

Please join our brainstorming session for this year's Nutfest (October 11, 2026)

Bring your ideas for panels, activities, and speakers.

Zoom Meeting ID: [zoom.us/j/96670990175](https://zoom.us/j/96670990175)

Meeting Password: 157710



The Nutmeg Hamfest Alliance is pleased to announce a Town Hall to be held from 7 to 8 PM on Thursday, April 23, on Zoom to get input from the MARC membership as to what they would like to see happen at the 34th annual Nutmeg Hamfest, to be held on Sunday, October 11, at Maloney High School.

The Nutmeg board is specifically seeking input on two lectures and to determine radio activities the club might wish to see at the Hamfest, such as a GOTA station, a fox hunt, etc., that will be held in addition to the code plug programming activity inaugurated last year by Mike, KC1MJZ.

Other planned activities include a VE session, the annual update by ARRL leadership, and forums on fox hunting, mesh networks, POTA activations, and ARES/CERT. A new memorial lecture named in honor of John B N1GNV/SK is also being planned.

Contact Ed W1YSM ([W1YSM@arrl.net](mailto:W1YSM@arrl.net)) with questions & **see you there!**

# Minutes of the March Business Meeting

The following minutes of the March 12, 2026, MARC Business Meeting will be moved for approval at the April 9 meeting.

## Meriden Amateur Radio Club (MARC) BUSINESS MEETING MINUTES

March 12, 2026

7:00 - 8:00 PM EST via Zoom

Submitted by KC1STF, Julian LoRusso, MARC Secretary

**Quorum:** Our club secretary, KC1STF Jules LoRusso confirmed a quorum:  
Membership per 2/2026 Roster: 217  
Minimum required for Quorum: 21 members + 2 officers,  
one being the President or Vice President  
In attendance: 23 members + 5 officers

### In Attendance:

**Officers:** NZ1J David Tipping (President)  
NR1B Bill Huggins (Vice President)  
AC1SK George Bucci (Treasurer)  
K1RCT Rob Cichon (Station Activities Manager)  
KC1STF Jules LoRusso (Secretary)

### **Members:**

AC1TY Andy Rudczynski	KC10YN Rick Becker	N1ZN Jim Savage	W1BRY Don Chepurn
K1LHO Mike Ash	KC1SA Steve Allen	WA1ZVY Jim Martin	WV2LKM Steve Waldmann
K1LYP John Yusza	KC1YUY Joe Symcak	WB1GFI Stan Hiriak	W1YSM Ed Snyder
KB1JL Eric Olsson	KE1AU Bob Kaczor	WB1DQT Bill Bacon	WB1GFI Stan Hiriak
KC1DOY Ted Renzoni	N1API Al Kaiser	WB1GYZ Bob Biancur	
KC1WFB Lloyd Saberski	N1LES Joe Murray	WJ1B Harold Kramer	

### **Reports**

- Call to Order:** The meeting was called to order at 7:00 p.m. EDT by NZ1J, President Dave Tipping.
- Secretary's Report:** The secretary's report was delivered by KC1STF, Jules LoRusso
  - February 12, 2026, Meeting Minutes
    - Motion to accept February 12, 2026, meeting minutes by Jules LoRusso, as published in the recent email by Dave Tipping on 3/10/26:
      - Discussion: none
      - Motion: accepted
  - Motion was passed to accept two new members, Laurie Mallette (future amateur radio operator) from Waterbury, CT, and Wayne Brooks KC1ZAO (Technician) from Meriden, CT
    - Laurie Mallette is studying for her Technician license and will be taking her VE exam shortly. She is interested in CW, SSB, AM, HF, and mobile radio, particularly HF and POTA. Welcome Laurie!!
    - KC1ZAO, Wayne Brooks (Technician), was first licensed in February 2026. His interests are SSB, HF, and DX. He is excited to get going with amateur radio and is particularly interested in the FT 991 as his 1st radio. Welcome Wayne!!
  - Correspondence:
    - QSO (*sic*) cards from Japan were received from QSOs 4 years ago, received through the bureau, requesting returned QSO cards from MARC from a past contest.
      - Bob KE1AU has entered these contacts into LOTW and QRZ databases.
      - Since QSOs were from Japan, international postage would be expensive, and in addition, our club practice is not to return QSO cards; only enter contacts into LOTW and QRZ; therefore, no return cards will be sent.
      - N1API mentioned an ARRL outgoing bureau could be used, for reference.
    - Questions to the Secretary: None
- Treasurer's Report:** The March 2026 treasurer's report was delivered by AC1SK, George Bucci (2026 MARC Treasurer)
  - Please refer to the report submitted by AC1SK, George and published in email (*sic*) by Dave Tipping on 03/10/26
  - George mentioned all fund accounts were down due to the current conditions in the market.

- No expenses were presented for approval by the club membership for reimbursement.
3. **Station Manager's Report** - The March 2026 station manager's report was delivered by K1RCT Rob Cichon (Station Activities Manager)
- Please refer to the report submitted by Rob and published in email (*sic*) Report is available for any member in good standing
    - PC back from the town of Wallingford.
    - Configured the new VHF and HF PCs, ready for installation.
    - Working on a loaner program
      - Questions from Bill NR1B on policy
      - Rob will create check-out form; policy presently is to come to Rob K1RCT with your request; Period of loan will be determined based on need.
    - March 28 CQ contest -- PCs will be ready.

**Old Business:** None

**New Business:**

1. Scholarship Committee
  - Jim N1ZN, Schools sent scholarship information. Jim noted that any MARC member who has a son, daughter, grandson, granddaughter (*sic*) can apply for a scholarship regardless of where they reside in the US.
2. Cheshire Half Marathon, April 12, 7:00 to 11:00 am
  - Eric, KB1JL, Volunteers are requested to help with communications for the Cheshire Half Marathon. Proceeds from fundraising from the marathon are directed to two organizations: Abilities Without Boundaries and Best Buddies.
  - Lloyd KC1WFB mentioned it's a great opportunity for club members to participate. Last year, ~100 participants, one emergency occurred where the radio communications were utilized.
  - Anyone interested and available, please contact Eric.
3. Field day
  - The 2026 ARRL Field Day is scheduled for June 27--28, 2026. This is a premier annual amateur radio emergency communications exercise, typically held on the fourth full weekend of June. Operators across North America set up stations in field locations to test equipment and emergency preparedness.
  - Duration: Officially begins at 1800 UTC Saturday and runs through 2059 UTC Sunday.
  - Theme for 2026: "Amateur Radio: A National Resource". Activities: Emergency power operations, station setup, CW/Digital/Phone modes, and public demonstrations
  - Field Day is a good opportunity for club members to sharpen our skills and learn something new.
  - A successful event will involve providing food and snacks. Looking for volunteers to cover whatever you like
  - Stations will be activated at the OEM, and, like last year, at a remote site. Bill NR1B activated in a farmer's field, and the farmer's cows visited him during the activation.
  - Anyone interested in assisting in planning for the remote site, please contact Bill NR1B.
4. Simplifying MARC business -- Discussion leader Dave Tipping NZ1J
  - Dues Structure:
    - Originally Seniors paid \$15, where the normal rate was \$20- 25. Then everyone's rate was \$25. Then, if one paid by PayPal, rates were \$27
    - The current PayPal cost is \$1.03 / transaction.
    - Dave NZ1J proposed a flat rate of \$25 regardless of the method of payment. Rationale: Even though a \$1.03 fee is applied by PayPal, it streamlines the dues collection process by avoiding the handling of checks and cash.
    - A vote will occur in next month's business meeting to streamline the process via a \$25 flat rate.
  - 13 Page Welcome guide:
    - A small committee was formed co--led by George AC!SK, and Jules KC1STF
    - The original document was created by (*sic*) much hard work by Bart N1BRL ----- thank you Bart!!
    - George performed a small miracle by feeding the original N1BRL document into an AI tool (5 passes), and a reformatted version of the same document was created with hot links, large section headings, and many other new aesthetic features.
    - Jules and George performed some new edits to update information, and a new getting connected section was created.
    - Joe Symcak KC1YUY, one of our new members, offered to work with George and Jules to create a 1st draft for club members to review by the next business meeting. Joe has considerable tech writing experience. Thank you, Joe!!

- Bylaws:
  - Dave NZ1J expressed concern with some of the sections in the bylaws that were ambiguous or over (*sic*) specific on requirements such as the number of club members required for particular committees.
  - Dave suggested that updates to the bylaws that will help streamline how the club does business should be addressed one at a time vs. a study of the entire document and one vote on the entire set of revisions.
    - The suggestion was to vote on revisions one at a time, and once we are ready the entire document will be updated and voted on for approval by club membership.
  - In next month's business meeting a motion will be proposed for vote regarding the one issue at a time approach.
  - In context on (*sic*) how the most recent bylaws and constitution documents were updated, our past president Ed Synder W1YSM clarified:
    - A committee was formed to study and investigate proposed revisions to the bylaws.
    - Meetings were open to all club members, changes came from members and not just leadership.
    - The team tried their best to make improvements, but Ed recognized times change, and there's always room for improvement.
- Recognition
  - Al N1API mentioned that only two awards annually, the Ham of Year (*sic*) award and the Elmer of the Year award, were not enough to recognize various contributions of club members.
  - Would like to find a way to honor more club members.
  - Whatever improvement we come up with, it needs to be simple and streamlined.
  - Just a comment, at my gym, they have an athlete of the month on the whiteboard. My name never made it to that board, but I bet it made whoever made it there feel good. Could be something that simple, and recognizing more than one of our members for something.
- Other comments
  - Rick Becker KC1OYN wanted to clarify:
    - The membership dues structure was created to cover the PayPal costs. The intentions were good, but improvements can always help make our operations more streamlined.
    - The activity meeting in the Bylaws being required to be on the 4th Thursday of the month dates back to 1947. The committee that studied and implemented the most recent updates to the bylaws tried to focus on what was most important while preserving some of the traditions of the club.
    - In considering revisions to the bylaws, Rick wanted us to be aware of some of our traditions in the context of any future updates to the bylaws, whether it be our activity meeting scheduled (*sic*) or any other matter.
  - The MARC TECHNICIAN CLASS, led by Jimmy Suprenant AB1DQ, is in week 2.
    - In next month's business meeting, we will ask Jimmy to provide a report on this outstanding class he has organized.
    - It should be noted that Jimmy has placed a lot of hard work into organizing this class, and many potential new club members are participating (I don't have the count by its (*sic*) ~21 participants).
    - I encourage any of our club members to show up at the OEM while the classes are being delivered, which are held at the OEM on these dates at 6:30 PM.
    - Also, when you see Jimmy, please thank him for organizing these classes for our club.

- The schedule with the instructors from our club are (*sic*)shown below.

Meriden Amateur Radio Club Technician License Class - Working Syllabus - Spring 2026					
Week	Class Date	Topic	Chapter	Instructors	
1	2026-03-03	Welcome & Communicateing with Other Hams	1, 6	AB1DQ Jimmy Surprenant	NZ1J Dave Tipping
2	2026-03-10	Licensing Regulations & Operating Regulations	7, 8	KC1QWH Stephen Rygiel	KC1STM Ellen Cosgrove
3	2026-03-17	Electricity	3	WA1K, Jack Chapman	KC1TSL Charles Vosbrinck
4	2026-03-24	Components and Circuits	3	NZ1J Dave Tipping	AB1DQ Jimmy Surprenant
5	2026-03-31	Radio Signal Fundamentals	2	KC1STF, Jules LoRusso	W1TK Ron Wakefield
6	2026-04-07	LAB: TRANSMITTER PROJECT	X	AB1DQ Jimmy Surprenant	NZ1J Dave Tipping
7	2026-04-14	Amateur Radio Equipment	5	K1LYP John Yusza	KC1QWH Stephen Rygiel
8	2026-04-21	Propagation, Antennas, & Feed Lines	4	W1TK Ron Wakefield	KC1STF, Jules LoRusso
9	2026-04-28	REPEATER COURTESY & NETS - ON AIR DEMO	X	KC1QWH Stephen Rygiel	K1LYP John Yusza
10	2026-05-05	Safety	9	KC1TSL Charles Vosbrinck	WA1K, Jack Chapman
11	2026-05-12	REVIEW	all	AB1DQ Jimmy Surprenant	W1TK Ron Wakefield
12	2026-05-19	VE SESSION	all	N1ZN Jim Savage	K1LYP John Yusza

5. Meeting adjourned at ~8:10 PM

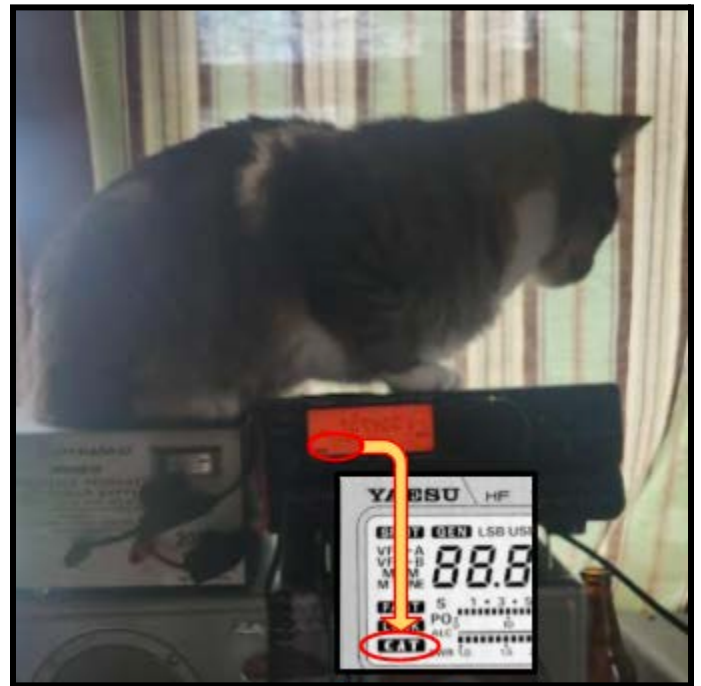
Respectfully submitted  
 Jules LoRusso  
 KC1STF

## *From the Department of Radio Cats*



Meet Otto (AKA "Bean"), who lives with **Reed Hansen, KC1NHE**. Bean is convinced the shack is his, but loves it when Reed is working the bands in there.

Look closely at the second photo and note that Reed has the Yaesu "CAT Control" appropriately activated on his FT-900.



***Do you share your radio space with a feline friend?***

Send your photos to [keyklix@w1nrg.com](mailto:keyklix@w1nrg.com), and we'll publish them in a future issue!



# THE W1NRG NEWSLINE

*“Providing Continuous Waves of Useful Club Information.”*

## Castle Craig 10-10 News

*by Al, N1API, Castle Craig Chapter Head*

The **10-10 Winter Phone QSO Party** results have been posted to the 10-10 web page. In Call Area One, here is a quick rundown of the results:

CALL AREA 1	Call	10-10#	CTX W	CTX WO	TOTAL
	N1API	25468	91	77	259
	WA1TBV	78259	51	46	148
	N1ZN	73599	31	35	97
	AA1CX	46677	10	10	30
	N1WVQ	73256	5	1	11
	N1RLR	76619	5	0	1

Other highlights:

- N1API was number 9 worldwide and Number 3 Low Power World Wide.
- W1NRG was Number 2 in the Club Calls category.
- Castle Craig Chapter placed Number 4 in the Chapter Entries with 4 logs and a total of 626 Points. N1API, N1ZN, and W1NRG entered for Castle Craig; it looks like N1WVQ contributed the 11 points.

Top Ten				
CALL	10-10#	CTX W	CTX WO	TOTAL
1 N5XZ	4530	358	1285	2001
2 WA7NB	74754	246	359	851
3 AD6WL	72740	161	216	538
4 ZL1WN	10339	142	199	483
5 K8DEL	2978	125	163	413
6 DL8YBM	36109	41	329	411
7 NC0B	74875	103	197	403
8 WB7UOF	29034	98	112	308
9 N1API	25468	91	77	259
10 KO4PK	60883	78	60	216

A number of PDF certificates were received, and as I go through my emails and file things in the proper place, I will forward the W1NRG certs to **KeyKlix**, Rob, K1RCT, the club's Station Activities Manager, and Dave, NZ1J, our President.

Thanks to those who helped build the QSO points. Let's get more CC participants for the Summer Phone QSO Party, the first weekend in August.

-73-

Al - N1API

Castle Craig Chapter Head

Castle Craig Certificate Manager

## Selected 10-10 Winter Phone QSO Party Results

CHAPTER ENTRIES		
CHAPTER	LOGS	PTS
HOUSTON SHOT	4	2289
NEANDERTHAL	7	1005
CATT	3	842
CASTLE CRAIG	4	626
POSSUM TROT	5	314
GATEWAY	3	178
STEAMBOAT	1	90
TANGO	1	42
CITY OF LIGHTS	1	34

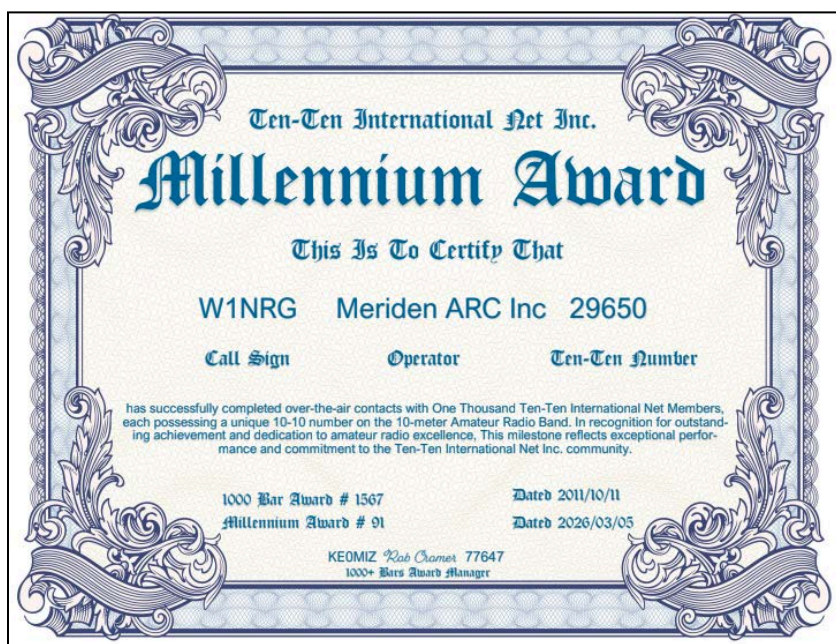
CLUB ENTRIES					
Call	10-10#	CTX W	CTX WO	TOTAL	OPS
DF0IA	68914	41	329	411	DL8YBM
W1NRG	29650	91	77	259	N1API
NM5H	68588	47	45	139	N5MT
WM3PEN	71057	19	9	47	WA3PZO
DK0DWK	73418	13	1	27	DH1PAL
DK0HHC	73417	13	1	27	DH1PAL
DL0KAC	73416	13	1	27	DF3TE

**ABOVE:** The MARC based Castle Craig chapter placed fourth in the contest among chapters & W1NRG placed second among clubs.

**RIGHT:** Castle Craig was awarded this certificate for the Winter Phone Contest.

**BELOW:** 10-10 International has added a new Millennium Award to the BAR program that will eventually replace the 1000 BAR Legacy certificate. MARC has earned the Millennium Award No 91 and was awarded this handsome certificate.

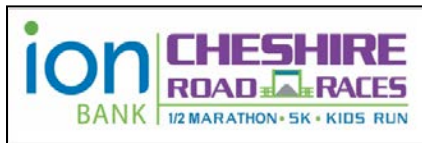
**GREAT JOB MARC 10-10ers!**



# MARC Community Volunteer Event

## *Cheshire Half Marathon Charity Fundraising Road Race*

Sponsored by Ion Bank



Sunday, April 12, 2026, 7 AM until Noon.

<https://www.cheshirehalfmarathon.org/>

Once again this year, MARC is supporting the Cheshire Half Marathon by providing communications throughout the race. Comms will be on the 147.36 (PL 162.2) Wallingford repeater.

Our task will be to monitor race progress- lead and tail runners, and to report medical, logistical, or traffic issues back to the command post. The race starts at Cheshire High School and runs 13.1 miles south to the Hamden town line and back, west of Rt 10, South Main St, on the linear trail and the adjacent roads. There are an anticipated 2,000 runners.

We are asking club members to sign up to help out. Volunteers should carry 2 meter hand held, a spare battery, and a backup radio. A gain whip antenna is helpful too. Bring appropriate clothing for an April outdoor event, water, and a snack. We have a limited number of spare radios and safety vests. CERT members can wear CERT vests and/or CERT jackets. This will also be a training exercise for CERT members.

We need amateur radio operators and club members to staff the positions along the race route. Most stations will be finished by 11 AM.

If you can help, please contact Eric KB1JL at [kb1jl@outlook.com](mailto:kb1jl@outlook.com) or in person. I will also answer questions. Club member Lloyd KC1WFB is the race coordinator and will also be available for questions.

It's a great way to help the community for a good cause, practice your communication skills, exercise your radios, and support MARC. It's also a lot of fun and a way to expose ham radio to the public.





## Wallingford CERT News

# Congratulations, CERT Graduates!

MARC extends our congratulations to the newest graduates of the Wallingford CERT class. Check out [this excellent 2026 class video](#) forwarded by **Shawn, KC1NQE**, to members of the CERT community.

Well done, everyone! CERT is a great program that not only serves our community by training volunteers to be able to respond to local emergencies and disasters, but it's also a great way for individuals to develop skills and confidence preparing for such events while building friendships, too.

### Important Dates:

- **Wed, April 8** - If you are a CERT member needing to renew your CPR certification, or if you have not yet completed your CPR training, please email [WLFDCERT@gmail.com](mailto:WLFDCERT@gmail.com) if you are planning to attend. Space is limited, and pre-registration is required for the class.
- **Wed, April 15** - The April Drill night will cover Bloodborne Pathogens. This training night is for all members, new and returning. Please do your best to attend to show your continued commitment, meet your fellow team members, and continue your learning.

### Gaylord Gauntlet June 13, 2026 Sign-up:

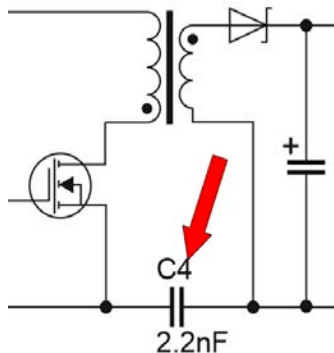
Wallingford CERT members are invited to take part in the Gaylord Gauntlet by volunteering to support race operations. This is a great opportunity for CERT to stay active in the community, assist event organizers, and continue building strong local partnerships. Members who are interested in volunteering can sign up online using the link below. When registering, please be sure to select "CERT" as your organization.

[Gaylord Gauntlet Sign-up Here](#)

## *The more you know...*

# The mysterious capacitor in a switching power supply: what it's for and how it works

*Shared by Jeff Dwyer, N1AKN*



Jeff Dwyer, N1AKN, shares this link:

<https://www.youtube.com/watch?v=zdaSXdhWSXw&t=1s>, for a fascinating and informative YouTube video from TECHNOGRAD on how parasitic capacitance in switching power supplies creates common-mode current that contributes to RFI noise that impairs receiver performance, and how the placement of a small capacitor between the negatives of the high-voltage and low-voltage sides of the power supply helps combat the problem.

Jeff points out that this fine point is helpful in understanding, since switching power supplies are noisy, especially on HF. "With high current plating supplies, with which I currently work, the RF interference creates even more problems with the plating operation.

## At the Clubhouse *with Ted, KC1DOY*

As the OEM was unavailable on **7 March** for our usual Saturday Open House, the club sponsored a POTA activation at Wharton Brook Park as an alternative Saturday morning activity.

Nine of us spent the morning at Wharton Brook today. **John, KC1KQH**, treated us to donuts, and **Jules, KC1STF**, invited us inside his heated tent. We operated four stations and made more than 100 QSOs with CW, SSB, and FT8. The weather could have been better, but it was no reason to stay home.

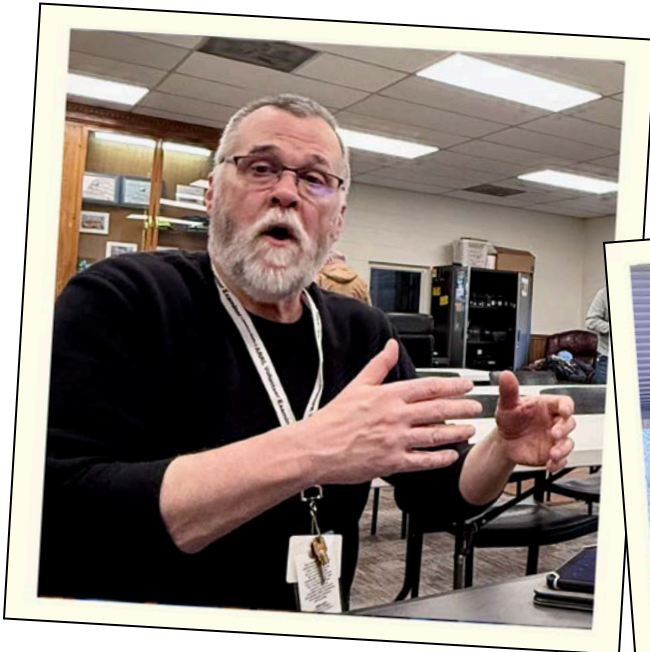
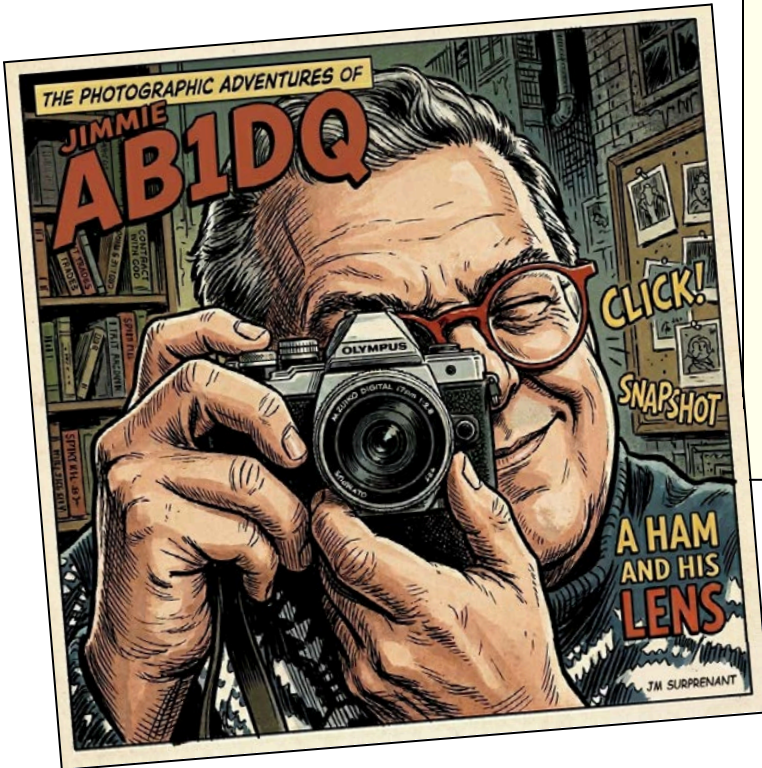
~ reported by Dave, NZ1J

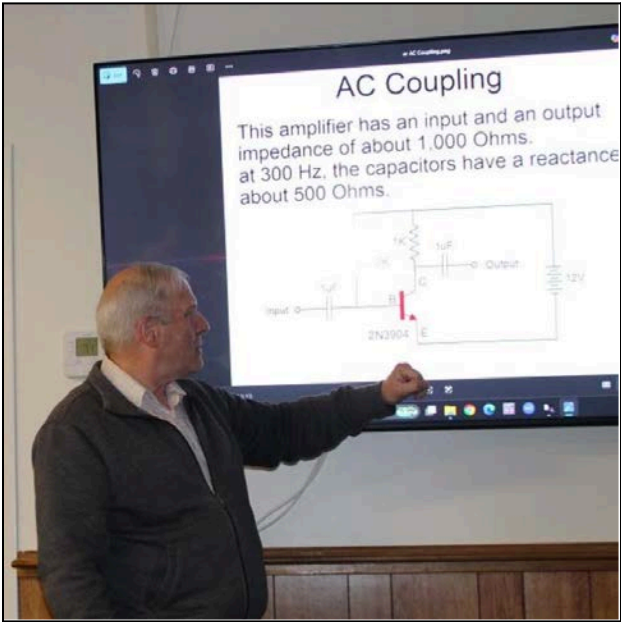


Sights from the MARC Saturday morning Wharton Brook activation on March 7. Photos courtesy of NZ1J, Dave & WA1MAC, Paul

Saturday, 14 March 2026, was another chilly March morning at the OEM, which started with the monthly MARC VE Session, followed by more of our usual open-house activities.

Here are a few photographs courtesy of your humble editor, **AB1DQ, Jimmie...**





Our March Activity Meeting was held on **Saturday, 21 March 2026**, with Dave NZ1J presenting on Transistor Amplifiers. Dave started by explaining the NPN Bipolar Junction Transistor (BJT), how they are constructed, and how the emitter, base, and collector leads can be arranged in a circuit to achieve the desired function, and how the desired level of amplification can be achieved within the limits of the chosen components. The NPN BJT transistor also converts the amplified output to an AC signal.

One of the best takeaways was Dave's explanation that it was not necessary to calculate all component values with extreme precision, but rather to allow output within the desired range. There is no need to overcalculate.

If you missed the class or were there and wanted a copy of the slide deck for your notebook, we have published Dave's slides starting on page 15, below. The class was well received by all, and Dave was very willing to continue the subject at future Activity Meetings. Everyone will be looking forward to additional sessions on this very interesting subject.

Ted KC1DOY



**The April Activity Meeting presentation on BJT Amplifiers presented by Dave, NZ1J on March 21 had a good turnout and the presentation was well received.**

Our Saturday meeting for **28 March 2026** started with a good-sized crowd at the OEM. Code practice is still a popular activity, as can be seen in the photo. Each session has those who are continuing to improve their code skills, as well as new people coming in to learn from the beginning.

Bill (no call yet) brought in an interesting item. A Radio Shack combination code practice key with an AM radio built into it. It came with a Radio Shack ham radio novice licence manual. Obviously, this combo goes back quite a way! The keyer had a straight key as well as a vintage-style "clicker" like the old telegraph keys. You never know what you'll see at MARC on a Saturday morning.

After a pizza lunch, it was time for the CQ WW SSB WPX Contest. **Mike KC1TSX**, **Dave K1DMS** and **Rich KB1FGC** can be seen making some QSOs in the club radio room. **Reed KC1NHE** stopped by later to also work the contest from the club station.



TOP LEFT: Code Practice led by WB1GYZ, Bob continues to draw a big group on Saturdays, while Dave, NZ1J, Jimmy AB1DQ, and Paul WA1MAC loiter nearby; TOP RIGHT: New member Bill's interesting vintage radio shack Novice training materials. BOTTOM LEFT: Mike KC1TSX, Dave K1DMS, and Rich KB1FGC contesting at W1NRG; BOTTOM RIGHT: The 7300's waterfall worked great in the contest to locate other contest stations. Each horizontal line is someone saying something like "CQ Contest K1SSB."



Here's hoping that April Showers won't rain on our next meeting!

See you next month!

Ted KC1DOY

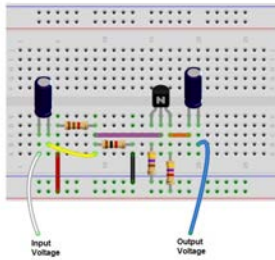
*The More You Know...*

# Introduction to Transistor Amplifiers

*by Dave Tipping, NZ1J*

## Introduction to Transistor Amplifiers

Dave NZ1J



## What is an Amplifier?

It uses a small amount of power to control a larger amount of power.  
A separate source of power is needed for the output power.

A relay can be used as an amplifier.  
The 500 amps needed for a car's starter motor is not wired to the ignition switch. A switch controls a relay, which controls the 500 amps.

Vacuum tubes are amplifiers. They use a small voltage to control a larger current.

Transistors are fundamentally amplifiers. There are several types of transistors. Some use a voltage as an input, others use a current.

## Transistors

Transistors have two basic types:

Field Effect Transistors (FET)  
Use a voltage to control a current

Bipolar Junction Transistors (BJT)  
Use a current to control a current  
BJTs can be types NPN and PNP  
We'll focus on NPN BJTs today.

## Some NPN Examples

2N3904 TO-92  
200mA  
40V  
625mW  
1 Emitter  
2 Base  
3 Collector

TIP31 TO-220  
40 to 100V  
5A  
Base  
Collector  
Emitter

MMBT3904 SOT-23  
350mW  
3 Collector  
2 Base  
1 Emitter

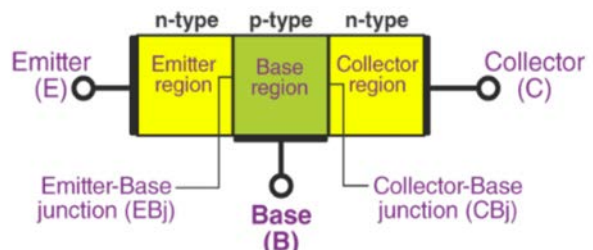
2N3055 TO-3  
60V  
15A

Good for Audio  
Not so good for Radio

Most Transistors are made of Silicon

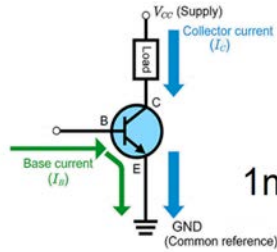
Impurities are added to make 'N type' and 'P type' silicon

Junctions join three layers, such as NPN



## The Two Currents

The current that flows between the Base and Emitter terminals, controls the current that flows between the Collector and Emitter terminals.

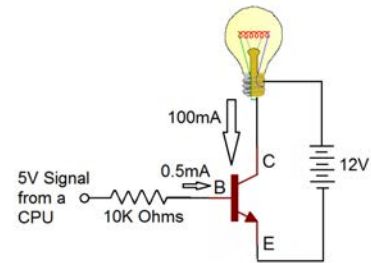


The 'Current Gain' may be as much as 200 times.

1mA can control 200mA

## Switching (Not Linear)

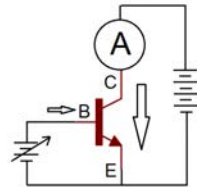
A low current, 5V signal controls a higher current, 12V bulb.



## The PN Junction

A PN Junction in silicon has a nonlinear characteristic. This table shows the relationship:

Vbe	Ic
0.55 V	1 $\mu$ A
0.60 V	10 $\mu$ A
0.65 V	100 $\mu$ A
0.70 V	1 mA
0.75 V	10 mA
0.80 V	100 mA



## NPN General - Purpose Amplifier

### 2N3904

#### Description

This device is designed as a general-purpose amplifier and switch. The useful dynamic range extends to 100 mA as a switch and to 100 MHz as an amplifier.

#### MAXIMUM RATINGS

(Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.) (Note 1, Note 2)

Symbol	Parameter	Value	Unit
$V_{CE0}$	Collector - Emitter Voltage	40	V
$V_{CBO}$	Collector - Base Voltage	60	V
$V_{EBO}$	Emitter - Base Voltage	6.0	V
$I_C$	Collector Current - Continuous	200	mA
$T_J, T_{STG}$	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ\text{C}$



## NPN General - Purpose Amplifier

#### THERMAL CHARACTERISTICS

(Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.)

Symbol	Parameter	Max	Unit
$P_D$	Total Device Dissipation	625	mW
	Derate Above $25^\circ\text{C}$	5.0	mW/ $^\circ\text{C}$

#### ON CHARACTERISTICS (Note 3)

$\beta_{FE}$	DC Current Gain	$I_C = 0.1 \text{ mA}, V_{CE} = 1.0 \text{ V}$	40	-	-
		$I_C = 1.0 \text{ mA}, V_{CE} = 1.0 \text{ V}$	70	-	-
$V_{CE(sat)}$	Collector - Emitter Saturation Voltage	$I_C = 10 \text{ mA}, V_{BE} = 1.0 \text{ V}$	100	300	-
		$I_C = 50 \text{ mA}, V_{BE} = 1.0 \text{ V}$	60	-	-
		$I_C = 100 \text{ mA}, V_{BE} = 1.0 \text{ V}$	30	-	-
$V_{BE(sat)}$	Base - Emitter Saturation Voltage	$I_C = 10 \text{ mA}, I_B = 1.0 \text{ mA}$	-	0.2	V
		$I_C = 50.0 \text{ mA}, I_B = 5.0 \text{ mA}$	-	0.3	-
$V_{CE(sat)}$	Collector - Emitter Saturation Voltage	$I_C = 10.0 \text{ mA}, I_B = 1.0 \text{ mA}$	0.65	0.85	V
		$I_C = 50.0 \text{ mA}, I_B = 5.0 \text{ mA}$	-	0.95	-

#### SMALL - SIGNAL CHARACTERISTICS

$f_T$	Current - Gain - Bandwidth Product	$I_C = 10 \text{ mA}, V_{CE} = 20 \text{ V}, f = 100 \text{ MHz}$	300	-	MHz
$C_{ob0}$	Output Capacitance	$V_{CB} = 5.0 \text{ V}, I_E = 0, f = 100 \text{ kHz}$	-	4.0	pF
$C_{ib0}$	Input Capacitance	$V_{EB} = 0.5 \text{ V}, I_C = 0, f = 100 \text{ kHz}$	-	8.0	pF

## Transistors are DC Devices

NPN transistors use one positive power supply. One transistor cannot produce true AC current.

Using capacitors and resistors, an AC input signal can get amplified by a transistor and be returned to AC at the output.

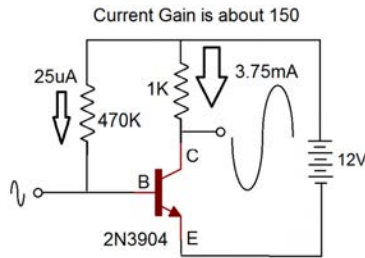
This process relies on 'transistor bias'

Bias causes current to flow when there is no input signal.

## The Simplest Transistor Bias

(12V - 0.6V) / 470,000 ~ 25uA

25uA x 150 = 3.75mA



## Going Further

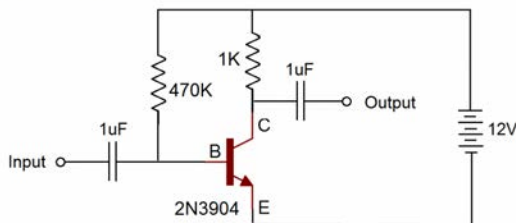
The input and output impedances of the amplifier should be matched to the source and load.

The transistor can be configured to have different impedances. The example we saw is called the Common Emitter configuration. There are applications for Common Collector and Common Base.

This example is also called 'Class A'. There are class B, C, and D amplifiers.

## AC Coupling

This amplifier has an input and an output impedance of about 1,000 Ohms. at 300 Hz, the capacitors have a reactance of about 500 Ohms.



### Points to Ponder...

- Q:** Why did the Bipolar Junction Transistor get kicked out of the counseling session?
- A:** Because it couldn't stop swinging between **Saturation** and **Cutoff**. One minute it's giving everything it has, and the next, it's completely shut down.
- Q:** Why did the ham prefer Field Effect Transistors over BJTs for his high-stress circuits?
- A:** Because FETs have higher **resistance** to emotional drama, whereas BJTs are too **bipolar** for stable relationships.



**W1NRG**

Greetings from the **NUTMEG PSYCHOLOGICAL RADIO LABORATORY**

CONFIRMING 2 WAY QSO WITH: \_\_\_\_\_ UR RST: \_\_\_\_\_ on \_\_\_\_\_ MHz MODE: \_\_\_\_\_  
 DATE: \_\_\_\_\_ TIME UTC: \_\_\_\_\_

SATURATION (MANIC) SATURATION (MANIC)

CUTOFF CUTOFF (DEPRESSED)

COLLECTOR CURRENT (Ic)

COLLECTOR

BASE

EMITTER

BASE BIAS

INSTABLE

BASE BIAS

QSL CONFIRMING CONTACT WITH THE BIPOLAR JUNCTION TRANSISTOR  
 HAVING A TOTAL EMOTIONAL BREAKDOWN.

**Wallingford, Connecticut USA**

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*The more you know...*

# The Dao of RTTY Contesting

*by Steve Ford, WB8IMY*

I'm willing to bet you've never heard amateur radio contesting described as a meditative practice, much less characterized as a manifestation of the "Dao." The Dao is central to Taoism (also spelled Daoism). It roughly means:

- The way
- The underlying natural order of the universe
- The principle that guides all things

A famous example is the classic Chinese text known as the Tao Te Ching (modern spelling Dao De Jing), traditionally attributed to the philosopher Laozi.

Odd as it may seem, the principles of Daoism can apply quite well to ham radio contests. In fact, radio contests provide excellent examples because the goal is clear (points, contacts, awards), but the activity itself can also be deeply engaging, thoughtful, and meditative.

If Laozi were a tester, I suspect he'd offer the following advice...

## **Focus on the Process, Not Just the Score**

In a contest, it's easy to fixate on the number of QSO points or the "winning" outcome. Instead, he'd likely encourage you to:

- Enjoy the craft of operating the radio
- Appreciate the ever-changing propagation conditions
- Engage in strategy, logging, and listening skills

In other words, the experience itself becomes the reward, not just the leaderboard.

## **Practice Mindfulness in the Moment**

Ham radio contests are full of sensory impressions you can observe with mindfulness:

- The sounds of signals fading in and out as propagation shifts
- The rhythms of contest exchanges
- The sounds of your fingertips on the key or keyboard

Being fully present in these moments mirrors the practice of "meditative attention." You are aware, alert, and engaged.

## **Maintain Detachment from Outcome**

Regardless of how well you may (or may not) be doing, you can still:

- Try your best
- Log as many QSOs as possible
- Use the strategy to maximum advantage

...but don't allow your sense of success, frustration, or ego hinge on winning or losing. If the band dies, or you miss a multiplier, you note the fact without suffering over it.

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## Approach Every Contest as a Learning Opportunity

Even when you “lose,” each contest offers:

- Insight into your operating skills and your station performance
- Greater understanding of propagation
- Lessons in patience and focus

Outcomes are temporary, but the skill and awareness you cultivate endures.

In April we have a few RTTY contests that offer interesting challenges that even Laozi might appreciate!

**EA RTTY:** Starts at 8:00 AM local time on April 4 and runs for 24 hours. Like all the April RTTY contests, this competition doesn't generate enormous activity, but there are enough contact opportunities to make it worth checking out. You can operate as a single operator on all bands, single operator on just one band, or gather some friends and enter the multi-operator category. You'll find the rules here: [concurso.ure.es/en/earthty/bases/](https://concurso.ure.es/en/earthty/bases/).

**IG-RY Worldwide RTTY Contest:** This is a somewhat more active event that starts at 8:00 AM local time on April 11 and ends at 2:00 PM the following day. For each contact you send a signal report and the year you were first licensed, such as “599 1971.”

This contest has an interesting history. For many years, the German DL-DX RTTY Contest Group (DRCG) ran two well-known RTTY contests: DRCG WW RTTY and DL-DX RTTY Contest. These contests stopped after the deaths and health issues of the key organizers.

The Interest Group RTTY (IG-RY) came to the rescue by creating the IG-RY Worldwide RTTY Contest. At the same time, the old DRCG contests were removed from the annual RTTY contest calendar (and from the IG-RY contest cup list). For complete rules and more, see [www.ig-ry.de/ig-ry-ww-contest](http://www.ig-ry.de/ig-ry-ww-contest).

**SP DX RTTY:** As the name implies, this competition tends to draw the DX community. It begins early at 8:00 AM on April 25 and runs for 24 hours. Among the April RTTY contests, this is the only one with a “multi-multi” entry category, meaning multiple simultaneous operators *and* transmitters. The rules are available at [www.pkrvg.org/strona,spdxrttyen.html](http://www.pkrvg.org/strona,spdxrttyen.html). At the time this was written, the website referenced the 2025 contest, but it may be updated soon.

**BARTG Sprint 75:** I left what may be the most intriguing RTTY contest for last. As you may know, amateur RTTY uses a signaling rate of approximately 45 baud. For this competition, however, you'll need to kick it up to 75 baud. And this contest is a sprint, which means it lasts only a few hours (3 hours and 59 minutes, to be exact). It starts at 1:00 PM local time on April 26 and ends precisely at 4:59 PM. You exchange serial numbers with each contact – nothing more. The rules are online at [bartg.org.uk/wp/bartg-sprint75-contests/](http://bartg.org.uk/wp/bartg-sprint75-contests/).

Note that not all RTTY software supports 75 baud. Fldigi does (<https://www.w1hkj.org>), and so does MMTTY ([hamsoft.ca/pages/mmtty.php](http://hamsoft.ca/pages/mmtty.php)). It pays to do a bit of research in advance.



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*The less you know...*

# FCC Announces New Rule: All Amateur Call Signs Must Contain at Least One Vowel by 2027

In a surprise late-night release on April 1, the Federal Communications Commission announced a sweeping update to Part 97: all amateur radio call signs must contain at least one vowel by January 1, 2027.

The ruling, designated [FCC 26-04-01](#), cites “pronunciation challenges, net-control fatigue, and an alarming rise in tongue injuries” as the primary motivations.

“We’ve received too many complaints from net controllers who nearly passed out trying to say call signs like K7RZQ,” an FCC spokesperson explained. “At some point, it stops being a call sign and starts being a dental exam.”

## Affected Operators

The FCC estimates that 14% of U.S. amateurs currently hold “vowelless” call signs, defined as any combination of letters lacking A, E, I, O, or U. The ruling does not recognize Y as a vowel, stating that “Y has been getting away with too much for too long.”

Operators with vowelless call signs will be automatically reassigned new ones “containing at least one vowel and preferably two for comfort.” The FCC has already reserved blocks such as:

- KQØAE
- N7IOU
- W4EAA

A special task force will handle “extreme cases,” including 1×2 and 2×1 calls that “sound like someone dropped a Scrabble rack.”

## Community Reaction

Reactions across the amateur community have been mixed. MARC member and avid contester Harold McBride, WR1ZQ (soon to be WA1ZQ), expressed cautious optimism. “Honestly, I’m tired of DX stations calling me ‘Wrzzzik.’ If this helps, fine.”

Meanwhile, CW operators are furious. “Do you know how long it takes to send an O?” complained one 30-meter regular. “This is government overreach at its worst.”

Digital operators, however, remain unaffected. When asked for comment, an FT8 enthusiast simply replied, “-02.”

## Implementation Timeline

The FCC outlined a three-phase rollout:

- Phase 1 – Awareness (2026)  
Clubs must inform members of the new rule and distribute the official FCC Vowel Chart, which includes pronunciation guides and a reminder that “E is your friend.”

- Phase 2 – Reassignment (Early 2027)

Operators will receive new call signs via the Universal Licensing System. Those who dislike their assigned vowel may file a Vowel Preference Form 97-A, selecting from:

- A (recommended for DX)
- E (recommended for nets)
- I (recommended for CW)
- O (recommended for ragchewing)
- U (recommended for digital modes)

- Phase 3 – Enforcement (Late 2027)


The FCC will begin issuing citations to operators who continue using vowelless call signs. Penalties include:

- Mandatory participation in a 48-hour Vowel-Only Net
- A \$25 fine
- Being assigned the call sign W0Ø0U0

### Looking Ahead

The FCC hinted that additional reforms may be coming, including a proposal requiring all repeaters to identify using “at least one cheerful vowel sound.”

Until then, hams are encouraged to practice saying their new, vowel-enhanced call signs in the mirror.

 <p><b>US FEDERAL COMMISSION OF COMMUNICATIONS</b> 45 EL Street NE, Washington, DC 20554</p> <p><b>MEMORANDUM</b></p> <p><b>TO:</b> All Licensed Amateur Radio Operators <b>FROM:</b> Office of Communications Clarity and Pronunciation Standards (OCCaPS) <b>DATE:</b> 01 April 2026 <b>SUBJECT:</b> FCC Report and Order 26-04-01 <i>Implementation of Mandatory Vowel Inclusion in Amateur Radio Call Signs</i></p> <p><b>I. PURPOSE</b> This memorandum provides formal notice regarding the Commission’s adoption of <b>Report and Order FCC 26-04-01</b>, establishing a new requirement that <b>all amateur radio call signs must contain at least one vowel (A, E, I, O, or U)</b>. This action is intended to improve on-air intelligibility, reduce operator fatigue, and promote national standards of enunciation.</p> <p><b>II. BACKGROUND</b> A multi-year review conducted by the Commission identified a significant rise in “consonant-dense call signs,” which have been linked to:</p> <ul style="list-style-type: none"><li>● Excessive repetition during net operations</li><li>● Misidentification during emergency traffic</li><li>● Increased risk of tongue strain among net controllers</li><li>● Confusion with malfunctioning packet transmissions</li></ul> <p>The Commission further determined that the letter <b>Y</b> does not meet the criteria for a “core vowel,” citing its “unpredictable behavior and inconsistent performance.”</p> <p><b>III. NEW REQUIREMENTS</b></p> <p>Effective <b>January 1, 2027</b>, all amateur call signs must:</p> <ol style="list-style-type: none"><li>1. Contain at <b>least one vowel</b> (A, E, I, O, or U)</li><li>2. Maintain existing structural formats (1×3, 2×3, etc.)</li><li>3. Avoid “excessive vowel stacking,” defined as “three or more consecutive vowels that sound like a yodel”</li></ol> <p>Operators currently holding vowelless call signs will be assigned new ones automatically. Affected licensees may submit a <i>Vowel Preference Form 97-A</i> within 90 days of notification.</p> <p><b>IV. IMPLEMENTATION SCHEDULE</b></p> <p><b>Phase A — Outreach (Q2–Q4 2026)</b> Clubs and organizations must distribute the official <b>FCC Amateur Vowel Integration Guide</b>, including pronunciation examples and recommended breathing techniques.</p> <p><b>Phase B — Reassignment (Q1 2027)</b> New call signs will be issued through the Universal Licensing System. Operators may request alternate vowels, subject to availability and regional vowel quotas.</p>	<p><b>Phase C — Enforcement (Q3 2027)</b> Continued use of vowelless call signs may result in:</p> <ul style="list-style-type: none"><li>● Written Notice of Vowel Deficiency</li><li>● Mandatory participation in the National Vowel Proficiency Net</li><li>● Temporary reassignment to the call sign <b>WØ00U0</b></li></ul> <p><b>V. FREQUENTLY ASKED QUESTIONS</b></p> <p><b>Q: Does this rule apply to vanity call signs?</b> <b>A:</b> Yes. Vanity applicants must select call signs containing at least one vowel. Requests for “all-consonant prestige calls” will be denied.</p> <p><b>Q: Are CW operators exempt?</b> <b>A:</b> No. The Commission acknowledges the increased transmission time but considers it “an acceptable sacrifice for clarity.”</p> <p><b>Q: Can I request the vowel Y?</b> <b>A:</b> No. Y has been placed under review pending further linguistic evaluation.</p> <p><b>VI. CONTACT INFORMATION</b> For questions regarding compliance, vowel selection, or pronunciation assistance, contact: <b>Office of Communications Clarity and Pronunciation Standards (OCCaPS)</b> Federal Communications Commission Washington, D.C. 20554</p>
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**ABOVE: The Controversial FCC Memorandum 26-06-01, which mandates the inclusion of a vowel in all US Amateur Radio callsigns effective January 1, 2027.**

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*The more you know...*

## **Another Technique to Learn the Code - Phonetics**

*by David Sack, K1DMS*

As you have been told (or already learned from hard experience), the worst way to learn Morse code is by trying to memorize dots and dashes. If you have to count a sequence of dots and dashes, and translate that into a letter, your brain will be constantly occupied with that task, and your ability to copy an entire word will be impaired. You will likely hit a "wall" beyond which you will not be able to get your code speed up to a useful one for pleasant and relaxed communication on the air. To make the learning process faster and easier, a number of learning methods have been devised. They all have the same aim: for you to gain the ability to have a letter or number pop into your brain upon hearing a series of tones in rapid succession, without thinking about the length or sequence of these tones.

Here, I present an old learning tool that I think is worth re-popularizing. Many years ago, when I was learning Morse, I found an article somewhere that aided my learning immensely. It described a kind of memory trick known as a mnemonic. (the "m" is silent) Mnemonics are techniques for remembering things more easily by associating the thing you are trying to memorize with something else that easily comes to mind, in order to more quickly and surely commit the new information to memory. Mnemonics are an ideal tool to learn the code. (and to assist our failing memories as we age!)

As an example of where mnemonics are useful, or even essential, I am often asked, "Doctor, how are you able to remember the names of all those body parts, diseases, and drugs?"

Answer? Mnemonics! Some of them have proven so powerful that they have been passed down through generations of medical students. So much so, that even though I have had no occasion in the past 50 years to treat someone for a wrist problem, I can still name all eight wrist bones I learned by remembering to "Never lower Tillie's pants. Grandmother might come home."

For learning Morse, you may find the mnemonic that I describe here to be quite helpful, or somewhat helpful, or not at all, depending on your learning style and your ears.

This trick relies on being able to recognize something about the way we pronounce words, which is this:

In nearly every English word that has two or more syllables, one of them, or sometimes two syllables, is accented. That is, one syllable is emphasized when we speak it. If this notion is new to you, try looking up the word "syllable" in the Merriam-Webster dictionary or the OED. You will find an accent mark over the syllable that should be spoken with greater emphasis. This emphasized syllable takes a bit longer to pronounce. The mnemonic I describe depends on this fact.

To illustrate: try speaking a word. It should be apparent, if it has more than one syllable, that one of them is accented. This holds true for nearly all words; if you pronounce a word with the accent misplaced, it sounds wrong, or foreign or funny. There is

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a by-now-clichéd witticism about accents being placed on the wrong syl-LAB-le. Of course, on occasion, there exist two legitimate ways to pronounce a word, but usually one is preferred, or more common in American English.

Now consider this. The sequence of dit's and dah's in a Morse character has a RHYTHM (with the exception of "E" and "T", since each has only one element). That is, it is possible to hear the RHYTHM of dots and dashes in most characters. And in our brain, we can associate that rhythm with the rhythm of any word that has its accented and unaccented syllables in a corresponding rhythm.

And most characters have a rhythm that you can learn to recognize. (In fact, before CW, when there was no tone to send, Morse code telegraphers had nothing to go by but the rhythm of the clicks of the receivers.)

Even if you think you lack all musical talent, your sense of rhythm is good enough to recognize the sound of the rhythms of words. Most of us are familiar with the door-knock "Shave and a haircut - five cents". If that was Morse, it would be DAH di-di DAH DAH - space -- DAH DAH. If you can connect a character's sequence of dit's and dah's to the rhythm of a word or phrase that is easily remembered, then before long you will learn to recognize that letter just by the rhythm -- without thinking. The faster you learn to recognize these rhythms, the faster you can learn code.

[Note: This technique applies to COPYING code but not SENDING. Copying is more difficult than sending, because when it comes to sending, you are in control of your pace. But if you are receiving, you are obliged to copy characters at the pace they arrive. Fortunately, if you know how to copy a character, it does not take much brain-work to send it. Sending has its own challenges, but these are ones of technique.]

As you can see from the above, this fact is the idea behind this simple mnemonic. When we speak a word, the accented syllables take longer to pronounce than the unaccented ones, in the same manner that dah's are longer in duration than dit's. Unaccented syllables roll off the tongue faster and correspond with dits, while accented ones come out like dah's. Thus, for words of two or more syllables, the placement of the accent(s) can correspond with dit's and dah's.

Example: Speak the word "linoleum" out loud. You will notice that it is pronounced "lin-0-le-um". As it happens, this word, accented on the second syllable, has the same rhythm as "di-DAH-di-dit", which is the letter "L". When I myself first encountered this mnemonic, hearing "di-DAH-di-dit" as "L" snapped almost instantaneously into my mental reflexes by attaching the letter "L" to such a word.

(By chance, I was taught the "L"-word as "fra-TERN-i-ty". That word worked like a charm for my Morse, but a word beginning with "L" would have been better. And to this day, I associate fraternities with the letter "L". "Fraternity" stuck to my temporal lobe like a magnet, and there's no pulling it off now.

Why is this method of learning Code potentially so much faster and easier? Because it simplifies brain-work. Consider the following calculation. English words are spoken between 120 and 160 WPM.

(You can prove this to yourself: try reading this text aloud for 15 seconds.) So you can imagine that if I spoke to you at only 75 WPM, which is about half that rate, you would

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find it easy -- perhaps even painfully so -- to make out the words I was saying. Now aside from one-syllable words like "the" or "it", most of these words have a rhythm.

Now, if I can link a "word-rhythm" to a Morse character in my brain, I should be able to hear these bursts of rhythm, and thus their associated characters, much more quickly than if I have to process a series of dits and dahs. I could probably interpret the characters at nearly the same pace as words would arrive if I listened to v-e-r-y...s-l-o-w...s-p-e-e-c-h., say 75 characters a minute. Naturally, we have to allow for the time the brain requires to transpose from the rhythm of a series of dits and dahs to the rhythm of a word to a memorized linked character. Allowing for that delay, we might expect to copy 60 characters a minute without too much effort, once we have practiced going from the dit-dah rhythm of the character to the rhythm of the word we have chosen as our mnemonic to the character in our head.

It may seem like a delay, adding the extra step to go from "dit-DA-dit-dit" to "linoleum" to the letter "L".

But believe it or not, with practice, that step can rapidly turn from a delay to a reflex! And once it does, we can increase the pace at which we can copy.

If we accept that attaining 60 characters/minute is well within anyone's ability, how fast is that in words per minute? Based on typical English text, the standard word in Morse has been considered by convention to be 5 characters. Allowing for a silent interval between words, the duration of one average character, that means  $60 / 6 = 10$  WPM! And I bet you could get there with less than 10 hours of practice, even starting from 0.

Below is a suggested mnemonic for learning code. Instead of memorizing the letter "A" as "dot-dash", try associating it with the rhythm of the word "array", which is pronounced, "ar-RAY". I have listed suggested mnemonics for each character, which seems practical. I have tried to choose words that begin with the same letter one is trying to connect it with. In some cases, there were Ham Radio or electronic terms to choose from. (This did not work for every letter, since the English language has some tendencies for where accents are usually found.)

While the mnemonic below is my own creation, you can substitute other word-rhythm associations of your own if you find ones that work especially well for you. As noted, for some characters, I was unable to provide a word or words that began with the same letter as the character. If you find those to be confusing, just don't use them. Even if this technique helps with only some of the characters, it can still speed things up for you.

A tip about mnemonics: experts advise that the more ridiculous, bizarre or shocking the association is, the easier it is to memorize.

The following example may illustrate my point about the way the brain can work faster with rhythm: Say the following out loud: "dot dot DASH dot ... dot DASH... dot DASH dot dot ...dot DASH dot dot".

(You can say "dits" and "dahs" instead of "dot" and "dash" if you prefer.) You can recognize that these are the dots and dashes you need to hear to copy the letters F, A, L, and L in "FAIL".

---

Now try spelling the same word, only using four words that have the rhythms of the letters in "FALL". Say to yourself, "interFERence - "array" - linoleum - linoleum". Which rolls off your tongue faster?

You may find that this method works for you for only some of the list, or perhaps doesn't suit your learning style at all. But I personally found it to be quite helpful in learning Morse 60 years ago with very little mental stress and drill. (I have not even touched on subject of how the mental stress in trying to remember dit's and dah's as letters fly by can impede our progress.)

So here are some SUGGESTED mnemonics. Make up your own if you prefer.

### Morse Code Mnemonic Study Sheet

- A · -            a-RRAY
- B - · · ·        No easy mnemonic. Make up your own. ("Just beautiful"? or "Band opening?")
- C - · - ·        COM-pre-HEN-sive
- D - · · ·        DIG-i-tal, DAN-ger-ous
- E ·              (has only one element - can't be made rhythmic)
- F · · - ·        in-ter-FER-ence (good radio-relevant word)
- G - - ·          GOSH, DARN it! (Or if you prefer, G-d damn it!)
- H · · · ·        Try "how-do-you-do!" pronounced as in "that's a fine How-do-you-do!".
- I · ·            Isn't (This works as two dits because "isn't" spoken fast has no clearly audible accented syllable)
- J · - - -        it's-JUST-TOO-LONG
- K - · -          KAN-ga-ROO
- L · - · ·        Lo-CAL-i-ty, (or las-CIV-i-ous, or "fra-TER-ni-ty," the way I learned it)
- M - -           MY-MY! or MOST DEF
- N - ·            NEU-tral, NET-work
- O - - -          OH-MY-GOD! (or ON-MY-WAY)
- P · - - ·        There is no good single word. You can make your own. Or just memorize saying To yourself di-dah-dah-dit
- Q - - · -        No one word. Choose a phrase "God save the Queen" or a line from a song. "Here Comes the Bride" etc.
- R · - ·          re-SIS-tance, or re-AC-tance
- S · · ·          silicon (the first syllable, "sil" is not strongly accented, so it may work for you as a dit-dit-dit. (If not, try just remembering it. It should be easy since everyone knows the "S" in "SOS",)
- T -              (a single dah, which has no rhythm)
- U · · -          under-STAND

V . . . - A phrase will do. Make up one that begins V. Maybe "Out of this world". I like to think of Beethoven's Fifth Symphony rhythm. (especially since watching a film from decades ago called D-Day.

W . - - well I'LL BE!

X - . . . - EX-it-a-HEAD

Y - . . . - shut the F... UP! (This might work if you don't mind swearing) Or substitute "FRONT DOOR"

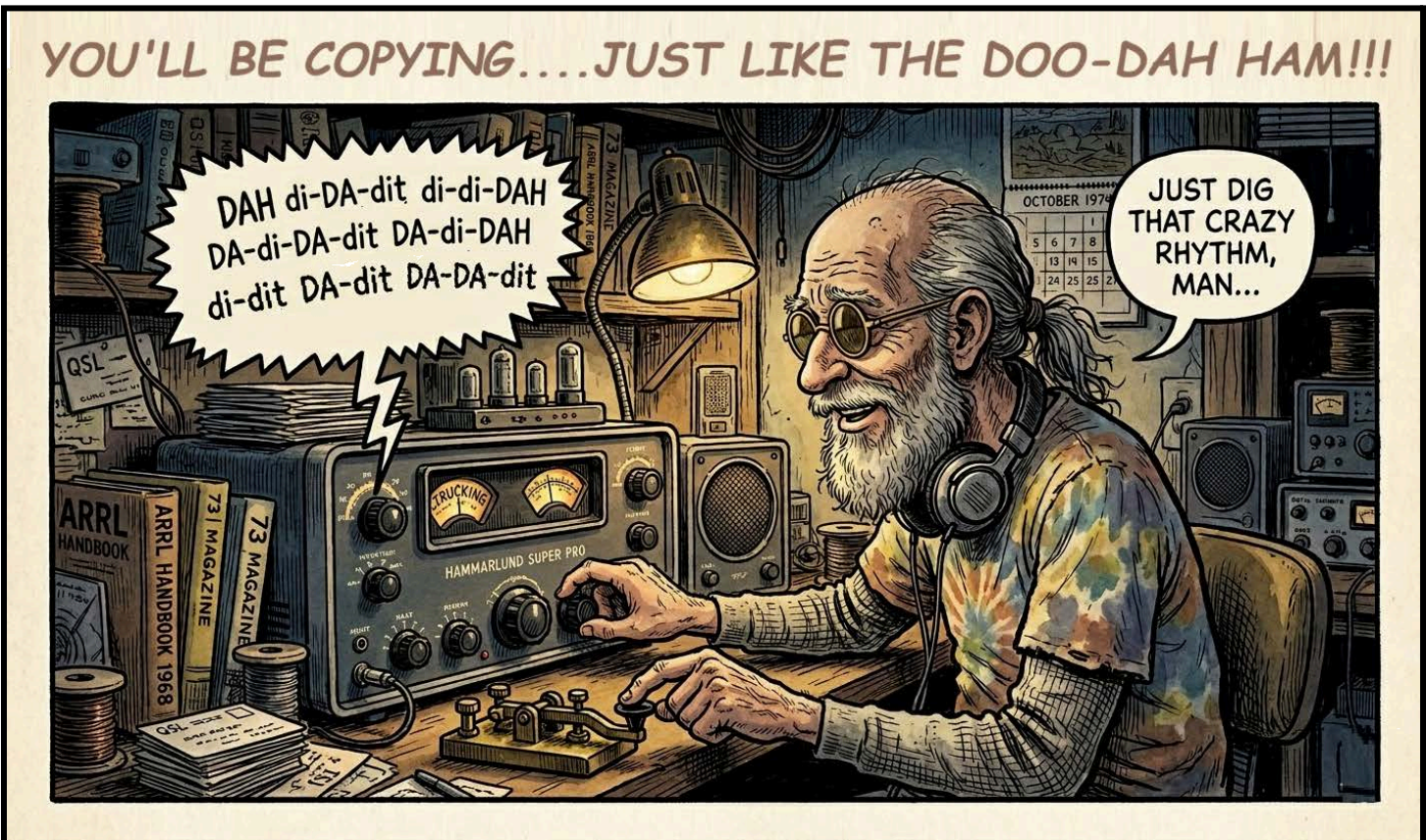
Z - - . . OH-WOW! : ze-bras!

#### FOR SPECIAL CHARACTERS

There are a few special characters to bedevil us after we have learned letters and numbers. The common ones include: ? . / and "pause". They all have 5 or 6 elements, so they don't easily lend themselves to word associations. It may be necessary to just learn them without a word, but by their rhythms!

However, I will add a tip that might be useful. **Bob Biancur WB1GYZ** mentioned someone he knew who memorized special characters as pairs or triplets of letters put together without a pause between them. In that way, he memorized a question mark, which is "dit-dit-dah-dah-dit-dit", as "IMI". A "pause" becomes "BT".

Complete lists of Morse characters can be found in many references such as websites like that of the ARRL. There are many other ways to learn Morse. No one way is right for everyone, and it is sometimes most useful to combine several approaches. Above all, recognize that the person at the other end was at one time a beginner just like you, and chances are they will be very patient with mistakes.



# SKCC News

*(Compiled for you, by Jimmy, AB1DQ)*

The March SKCC Weekend Sprintathon was held March 14 & 15, 2026, with the theme, "Cooties." Three MARC members participated and uploaded scores. BIG CONGRATS to **Rich, KB1FGC**, who finished fourth overall in the QRP 5 W or < category!

Here is how MARC participants fared...

## OVERALL:

Rank	Callsign	Name	SKCC #	SPC	QSOs	SPCs	S/T/C	Bonus	Score
094	K1LHO	Mike	15842	CT	022	016	13/4/0	000	587
100	KB1FGC	Rich	21047S	CT	013	009	11/2/0	031	433
130	AB1DQ	Jimmy	14595T	CT	009	009	06/2/0	000	291

## QRP - 5 Watts or Less:

Rank	Callsign	Name	SKCC #	SPC	QSOs	SPCs	S/T/C	Bonus	Score
004	KB1FGC	Rich	21047S	CT	013	009	11/2/0	031	433

## QRO - 100 Watts or Less:

Rank	Callsign	Name	SKCC #	SPC	QSOs	SPCs	S/T/C	Bonus	Score
074	K1LHO	Mike	15842	CT	022	016	13/4/0	000	587
099	AB1DQ	Jimmy	14595T	CT	009	009	06/2/0	000	291

In other SKCC March on-air events, to date, no MARC members have uploaded logs for the monthly 2-hour Sprintathon that was held on Tuesday, March 24, and no members submitted their monthly SKCC QSO totals for the February brag. **Bart, N1BRL**, was the only MARC member to report QSOs in the March Slow Speed Saunter, logging 2 contacts.

Mark your calendars for the April SKCC On-Air Events and be sure to upload your logs - we will publish club member results each month and salute all noteworthy individual achievements!

- [April Slow Speed Saunter \(CQS\)](#): 0000-2359 UTC, April 1, 2026
- [April Weekend Sprint-a-thon \(WES\)](#): 1200 UTC, April 11 - 2359 UTC, April 12  
Theme: Easter EGG & Peter Rabbit Hunt
- [April 2-hour Sprint-a-thon \(SKS\)](#): 0000-0200 UTC, April 22, 2026  
Bonus Station: K3MD, John Thompson, No. 14351
- [April 2026 Brag](#): 0000 UTC, April 01 - 2359, April 30  
Bonus Station: NQ8T, Steve, No. 5919S



**READ ALL ABOUT IT!**

The March 2026 issue of the Quarterly SKCC Newsletter *Ragchew*, Vol. 20, Issue 1 has been published.

Download your free copy online [here](#).

## *The less you know...*

# Cleaning Tips de KC1DOY



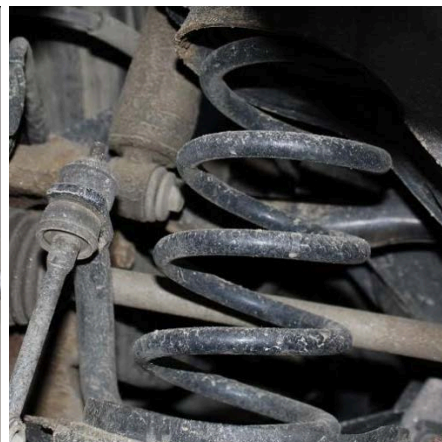
It's mid-week, March 10th, and the weather is beautiful. I decided that this would be a great time to do some early Spring cleaning. This Winter left a lot of dust and dirt on everything, so here is how I get the job done.

For smaller jobs, gather everything in a designated workspace. Having the right brushes and cleaning supplies is a must. Use a magnifier to check for rust or corrosion.

Once you've finished inside, don't neglect your outdoor springs. These can become especially dirty because they are exposed to the elements, including varying degrees of heat and cold, as well as water. Keeping your springs in good shape will save you money. By the way, don't forget to check your flashlights. A leaking battery can really do a number on the tension spring.

While this doesn't begin to cover all of the various springs that you probably have all around your house, these basic techniques should get you started.

Happy Spring Cleaning everyone!  
Ted KC1DOY





# MARC in the Parks

## Highlighting member POTA activations in March



On March 8, **Deb, K1PET**, and **Andy Purchia, N1XXU**, went to Wharton Brook to try out the new setup in their new POTA Truck.

While there, they encountered **Dave, NZ1J**, and made some Park-to-Park contacts with him. They always enjoy seeing Dave, one of the hams they attribute with helping them catch the POTA bug.

Deb and Andy logged 47 with their new setup, including Hawaii on 15 M - *well done!*

On Friday, March 27, **Scott Martin, W1HLP**, was at US-1705 Osborndale State Park (US-CT), where he appropriately made 27 contacts on the 27th, the final contact being with fellow MARC member **Jim Savage, N1ZN**. He also had one DX contact, with OK2VWB, "Vasek" Bajger, in the Czech Republic.

Scott's antenna was leaning a bit in the wind, but performed well. Scott is thinking about coming up with something easier to put down on the ground for a ground cloth.

Possibly 2 4x4' screen panels with a light wooden frame perimeter that he can just throw in the back of the truck that doesn't need to be rolled up.



### The more you know about....

## LifeP04 batteries



Lithium Iron Phosphate (LiFeP04) batteries can be a great source of DC power for POTA activators.

**KeyKlix** Contest Editor **Steve Allen, KC1SA**, has published some interesting information on his four years experiences with three brands of LiFeP04 batteries and how they have worked out through the years.

This may be useful to our POTA folks wondering about these types of batteries, particularly for those who haven't taken the plunge yet. **Link:** <https://kc1sa.com/2026/03/06/lifepo-battery-analysis/>

# RADIO ACTIVITY

## *A look at what our members have been up to in March*

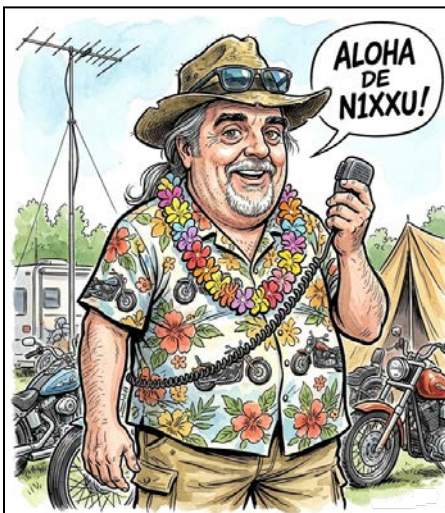
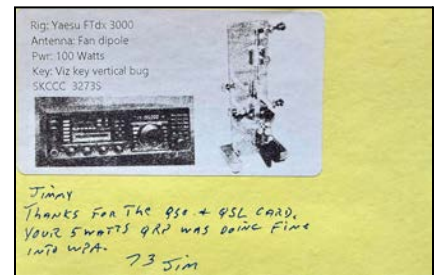
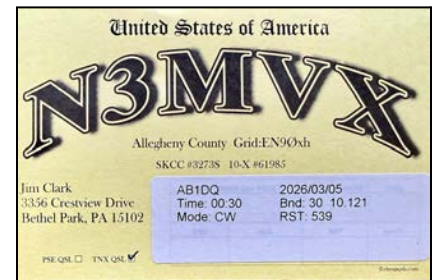


After work on Wednesday evening, 04 March, **Jimmy Surprenant, AB1DQ**, was tweaking the alignment on his recently built QCX+ by calling CQ, and observing the reported frequencies from the spots on [RBN](#) to check the accuracy of the rig's digital dial. Jimmy noticed that the QCX+ display was initially off by +1.0 kHz relative to RBN. By gradually adjusting the rig's reference frequency on Menu 8.5, he was able to sync the dial precisely to the RBN spots.

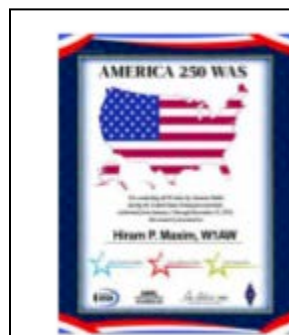
The band was quiet, and Jimmy wasn't expecting a response to his calls, but then he heard NQ8T in OH coming back. Jimmy worked him, swapped SKCC numbers, and was thrilled to log his 1st QSO with his new home-built rig. Then, after signing with NQ8T, N3MVX in PA quickly called, providing Jimmy with another contact for the log - and another SKCC number too! The 539 he received from N3MVX was adequate, running <5 watts and with uncertain band conditions.

Jimmy noted, "ham radio means a lot of different things to different folks, and for me, my ultimate ham radio fantasy has always been to make contacts with a station only containing gear I built myself." He realized that on this evening, he achieved his goal as his in addition to the QCX+, he used a small LM386 audio amp & speaker he built into a mint tin, the Emtch ZM-2 ATU he built years ago, the EFHW dipole with the 49:1 un-un he raised a year ago with the help of **Rob, K1RCT**, with DC power distributed through the fused DC power bus he built into a 7-20-4 cigar box using XT90 connectors rather than PowerPoles.

Jimmy reflected, "Whelp, that's as real as it gets for me! All these years later, the thrill hadn't faded one bit." He also noted that, though licensed for nearly 25 years, these were his first two QSOs on 30M; another personal milestone.



**Andy Purchia, N1XXU** worked [W1AW/KH6](#) (Op: [Dave, AH6US](#)) in Hawaii on Andy's drive to work on March 18 from his new mobile shack... Andy received a 52 and sent 57. The rig is an FT891 coupled to the Yaesu ATAS-120a. **ALOHA ANDY & 73!!!**

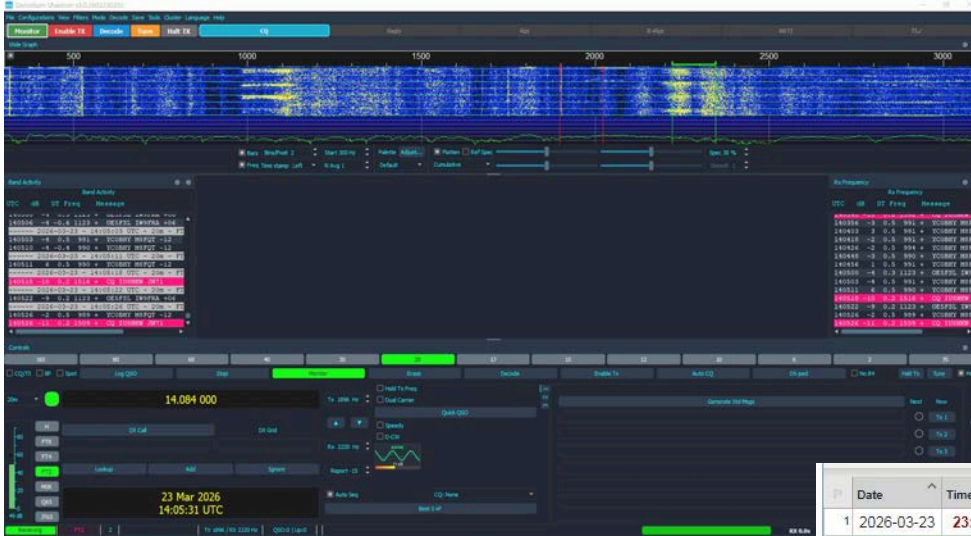


*If you were unaware...*

The ARRL currently has an **America250 WAS** program underway in commemoration of our nation's semiquincentennial!

SEE: [www.arrl.org/america250-was](http://www.arrl.org/america250-was)

MARC President **Dave, NZ1J**, gave FT2 a try in March. He shared this link, which provides a lot of information along with a link to download 'Decodium', which works like WSJT-X: <https://www.ft2.it/index.html>. Dave noted that the website site may may have been written with AI, which likely means it's a bit optimistic and contains some errors.



The software loaded and configured easily for Dave on Win 10 and Win 11 and he noted that "the look and feel is a bit different than WSJT-X, but maybe it's better in some ways.

QRZ recognized FT2, but LoTW wanted to call it DATA. We'll see how long it takes for LoTW to catch up. The ADIF standard does recognize FT2."

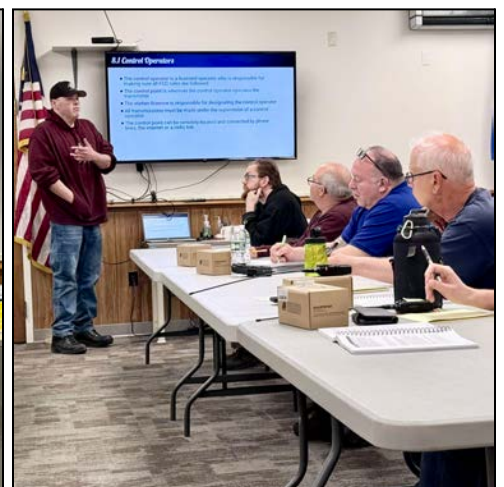
Dave found activity on FT2, but not much, and added that Decodium also works with FT4 and FT8. He plans to use it on all three modes for a while to better understand it.

ID	Date	Time	RX Call	TX Pre...	RX Mode	RX Grid	RX Country
1	2026-03-23	23:21	K6GOH		FT2	DM15	United States
2	2026-03-23	23:21	K6GOH	14.086	DATA	DM15eo	United States
3	2026-03-23	23:20	NW8D	14.086	FT2	EN81	United States
4	2026-03-23	23:20	NW8D	14.086	DATA	EM99np	United States
5	2026-03-23	23:18	KQ4ASO	14.082	FT4	EM84	United States
6	2026-03-23	23:17	AA1ZZ	14.082	FT4	EM16	United States
7	2026-03-23	23:00	N5IF	14.076	FT8	EM11ig	United States

## Spring Technician Class 2026 Update

The Spring MARC Technician Class is underway. Twenty students began their journey towards their Technician license on March 3rd and are making great progress! The MARC program is focused on going beyond simply memorizing the answers to the question and enjoying hands-on radio activities while they study. Students are using programmed GT-5R HTs to monitor local nets and in April, will build their own simple AM transmitter to understand concepts of oscillation, modulation, and harmonics!

Our classes feature rotating members teaching topics they find compelling, keeping the classes fresh for our students. Dave NZ1J covers components, and Steve, KC1QWH, discusses operating procedures, while Jack, WA1K, and John K1LYP presents electricity principles.



# SELECTED ON AIR EVENTS - April 2026

## CONTESTS: *Click on hyperlink for more info...*

<a href="#">ARS Spartan Sprint</a>	0000Z-0200Z, Apr 7
<a href="#">QRP ARCI Spring QSO Party</a>	0000Z-0600Z, Apr 11
<a href="#">Japan International DX CW Contest</a>	0700Z, Apr 11 to 1300Z, Apr 12
<a href="#">OK/OM DX Contest, SSB</a>	1200Z, Apr 11 to 1159Z, Apr 12
<a href="#">SKCC Weekend Sprintathon</a>	1200Z, Apr 11 to 2359Z, Apr 12
<a href="#">IG-RY World Wide RTTY Contest</a>	1200Z, Apr 11 to 1800Z, Apr 12
<a href="#">Africa FT4 DX Contest</a>	1500Z-1800Z, Apr 11
<a href="#">Hungarian Straight Key Contest</a>	1500Z-1600Z, Apr 12
<a href="#">4 States QRP Group Second Sunday Sprint</a>	0000Z-0200Z, Apr 13
<a href="#">Netherlands Telegraphy Club QSO Party</a>	1900Z-2000Z, Apr 16
<a href="#">World Wide Holyland Contest</a>	2100Z, Apr 17 to 2059Z, Apr 18
<a href="#">ES Open HF Championship</a>	0500Z-0859Z, Apr 18
<a href="#">Worked All Provinces of China DX Contest</a>	0600Z, Apr 18 to 0559Z, Apr 19
<a href="#">Dutch PACCdigi Contest</a>	0700Z-1900Z, Apr 18
<a href="#">QRP to the Field</a>	0800 local-1800 local, Apr 18
<a href="#">CQMM DX Contest</a>	0900Z, Apr 18 to 2359Z, Apr 19
<a href="#">World Time Zone Challenge</a>	1200Z, Apr 18 to 1200Z, Apr 19
<a href="#">EA-QRP CW Contest</a>	1700Z, Apr 18 to 1200Z, Apr 19
<a href="#">ARRL Rookie Roundup, SSB</a>	1800Z-2359Z, Apr 19
<a href="#">Run for the Bacon QRP Contest</a>	2300Z, Apr 19 to 0100Z, Apr 20
<a href="#">SKCC Sprint</a>	0000Z-0200Z, Apr 22
<a href="#">Helvetia Contest</a>	1300Z, Apr 25 to 1259Z, Apr 26
<a href="#">BARTG Sprint 75</a>	1700Z-2059Z, Apr 26
<a href="#">Russian Contest Club Cup</a>	0300Z-0859Z, May 2
<a href="#">MIE 33 Contest</a>	2300Z, May 4 to 0300Z, May 5
<a href="#">ARS Spartan Sprint</a>	0100Z-0300Z, May 5

## STATE QSO PARTIES:

<a href="#">New Mexico QSO Party</a>	1400Z, Apr 11 to 0200Z, Apr 12
<a href="#">Missouri QSO Party</a>	1400Z, Apr 11 to 2000Z, Apr 12
<a href="#">Georgia QSO Party</a>	1800Z, Apr 11 to 2359Z, Apr 12
<a href="#">Michigan QSO Party</a>	1600Z, Apr 18 to 0400Z, Apr 19
<a href="#">Ontario QSO Party</a>	1800Z, Apr 18 to 2000Z, Apr 19
<a href="#">Quebec QSO Party</a>	1300Z-2359Z, Apr 19
<a href="#">Florida QSO Party</a>	1600Z, Apr 25 to 2159Z, Apr 26
<a href="#">Indiana QSO Party</a>	1500Z, May 2 to 0300Z, May 3
<a href="#">Delaware QSO Party</a>	1700Z, May 2 to 2359Z, May 3
<a href="#">New England QSO Party</a>	2000Z, May 2 to 2359Z, May 3
<a href="#">7th Call Area QSO Party</a>	1300Z, May 2 to 0700Z, May 3

## SPECIAL EVENT STATIONS:

<a href="#">KC50LO: Atlas Missile Silo, Oplin, TX</a>	Apr 11-Apr 12, 1500Z-0100Z
Key City ARC, Abilene, TX	28.400 21.300 14.250 MHz
QSL: Key City Amateur Radio Club PO Box 2722 Abilene TX 79604	
<a href="#">N5L: Louisiana Purchase Special Event</a>	Apr 16-Apr 21, 0600Z-0600Z
Ascention ARC, Gonzales, LA	14.400 MHz
Cert: K5ARC, PO Box 1617 Gonzales, LA 70707	

## *Weekly W1NRG Nets... On the Air all week long!*

**Sunday:**

**ELMER NET**

**SUN 7:30 pm VIA ZOOM**

See the MEMBERS AREA of our Website for the Zoom access information.

**Monday:**

**NEW HAVEN/MIDDLESEX SKYWARN NET**

**MON 7:00 pm W1NRG/R 147.360PL 162.2Hz**

**6 METER SSB NET**

**MON 8:00 pm 50.175 MHZ USB**

**Tuesday:**

**2 M FM NET**

**TUE 7:00 pm W1NRG/R 147.360PL 162.2Hz**

**10 M 10-10 CASTLE CRAIG NET**

**TUE 8:00 pm 28.375 MHZ USB**

**Wednesday:**

**JUST PUSH THE BUTTON NET**

**WED 7:00 pm W1NRG/R 147.360PL 162.2Hz**

**Saturday:**

**COFFEE CUP NET**

**SAT 9:00 W1NRG/R 147.360PL 162.2Hz**

### *Saturday mornings at the OEM is the only place to be!*

Join us starting at 9:00 am at 143 Hope Hill Road for our Saturday Open House.

Hang with fellow club members in a non-structured social setting and participate in various radio activities such as:

- Code practice
- Operate W1NRG, our club station and work some DX
- Radio repair clinic
- Bring in your projects for a Maker's show & tell

Come, relax, & socialize with a wicked cool group of the friendliest hams anywhere!



# Key Klix *Klassified* - Buy, Swap & Sell...

## ITEMS FOR SALE

### ITEMS FOR SALE by KC1CAB , Frank D.

Email: [kc1cab@snet.net](mailto:kc1cab@snet.net)

#### Yaesu G450 ADC Rotor and Controller.

Incl.connectors to rotor and controller. **\$200.00**



#### MFJ 998 Automatic Antenna Tuner

Works well - Includes iCom interconnect cable -  
Some minor wear on the case. **\$525.00**



#### Kenwood TS 450S (AT)

Very nice, very little use, includes microphone  
and power cables. **\$400.00**



*Actual items depicted above.  
Email Frank for additional photos.*

### ITEMS FOR SALE BY K2RPM, BRUCE TORELLO

Email: [btorello@sdaoc.com](mailto:btorello@sdaoc.com)

- **ICOM ID880H with Manual and RT Systems Windows Cloning Software and Mobile Bracket** - Original Owner Good Working Condition - Analog and D-Star capable **\$ 200.00**
- **Ameritron AL-80B w/ Manual** - Hardly used since purchase. I'm the original owner. It's in new condition electrically, physically, and operationally with full output - and, no scratches whatsoever. It's currently wired for 240VAC, but can easily be changed to 120VAC. Comes with all original documentation and manual. Due to its size and weight, I will NOT ship - Pick-Up only. Cash preferred, but I will accept a bank cashier's check or USPS postal money order. **\$1,200.00**
- **Drake R8 Receiver w/ Matching Speaker** - Original Owner Good Working Condition Manual Included **\$ 450.00**
- **Uniden BCD996T Scanner w/ digital PDF manual** - Analog and digital trunked public safety systems receiver **\$ 150.00**
- **Icom IC38A 220 MHz Mobile Radio** - Working Condition w/ Manual and antenna (Need NMO mount) **\$ 100.00**
- **Diamond SX-100 SWR/Power Meter 1-6 to 60 mhz** - Original Owner Good Working Condition **\$ 100.00**
- **Coaxial Dymanics Directional RF Wattmeter** - Model 81000-A with 2 - 30mhz and 400 - 1000mhz slugs and N to PL-259 adapters **\$ 150.00**
- **Heil Classic 4 Microphone** - Original Owner Good Working Condition S/N 3757 **\$ 50.00**
- **Yaesu MD-100 Microphone - Mic Only** - Original Owner Good Working Condition **\$ 50.00**
- **Heil HM-10 Microphone with case and windscreen** - The HM-10 dual microphone has both the HC-5 full range and the HC-4. 'Dx Dream Machine' elements. The Narrow - Wide switch is used to select the HC-4 in the Narrow position or the HC-5 in the Wide position. **\$ 50.00**
- **Yaesu MH-31B8 Mobile Microphone** - In Box Never Used **\$ 25.00**
- **Heil Mic Interface Cables** - For Kenwood Radios **\$ 25.00**
- **Icom IC-W2A Dual Band Hand Held Radio** - With BP-84 and (1) additional battery and plug in charger - With Manual **B.O.**
- **220 MHZ - Beam Antennaco 223-11 -11 Element Long John 220 mhz Beam** - Like New **\$ 100.00**
- **144-146 Mhz (2 meter SSB) Beam** - 4 Element Antennaco Model 146-4 7 db gain **\$ 50.00**
- **50/144/430mhz Handheld** - Yaesu VX-7R w/ Base and mobile chargers and extra battery **\$ 100.00**

## Key Klix *Klassified* (Kontinued...)

Yaesu FT 991a Mini Manual \$ 25

\*\*\* Never Used \*\*\*

Shark OpenSpot 4 Pro (Hotspot) \$270

\*\*\* Never Used \*\*\*

Email ANDY RUDCZYNSKI [abrud2033@gmail.com](mailto:abrud2033@gmail.com)



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- N9SAB Portable 40-6 meter OCF dipole,  
Only used once. \$65  
*(STOCK PHOTO - not actual item)*
- Maxcon 80-10m OCF dipole. \$55

Email contact: [marzo7088@yahoo.com](mailto:marzo7088@yahoo.com)

## Key Klix April 2026

*Has been brought to you by*

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*Thank you to all of this month's contributors, including...*

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