

# The KeyNote



Newsletter of the Americas Chapter, FISTS CW Club—The International Morse Preservation Society  
Issue #3, 2019

## From the Editor: Is Passion for CW a Lifestyle Marker?

What does your passion for CW say about the other choices you have made about your lifestyle? And are you consistent with your lifestyle choices? As you no doubt know from targeted ads from Google and Facebook, numerous companies have developed algorithms based on the predictive value of lifestyle markers, with the assumption of consistency. I'll use my own choices to illustrate behaviors that you may share or at least find interesting. Note that I'm not commenting on whether my particular choices are appropriate or wise. It's possible to make consistently bad choices.

Let's start with simple daily grooming habits. I shave with straight razors, and keep them sharp with a Belgian stone and a horse-leather strop. I also lather up with a badger hair brush and scented soap designed expressly for shaving. Sure, it takes longer than squirting some shaving cream onto my hand from a can and running a multi-blade rake across my face. However, like picking out a weak CW signal from a pileup, I enjoy the challenge and the need to constantly focus on the task at hand.

Similarly, although I swim and run with a quartz watch, my dress watches are mechanical. There's something about manually correcting the time every week or so, and manually advancing the date with months shorter than 31 days. As with constantly fiddling with the band-pass filter on my transceiver to capture a CW signal, my

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**"When you've worked a FISTS, you've worked a friend."**

## INFORMATION PAGE

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When you have a question about FISTS, go to the source for the correct answer. Posting a question on a chat room or e-mail reflector may yield the answer, but your best bet is to ask a FISTS volunteer or look in the reference issue. Several volunteer contacts and/or e-mail addresses have changed from the last reference issue of *The Key-Note*. Please make note of the following listings.

When e-mailing a volunteer please put FISTS in the title of your e-mail. This will help the volunteer recognize that your e-mail is important and not spam.

### **Awards and Certificates**

Dennis Franklin, K6DF, [awards@fistsna.org](mailto:awards@fistsna.org)  
4658 Capitan Dr., Fremont, CA 94536-5448

### **Club Call, KNØWCW**

Cody Codianni, KC2LSD, [kc2lsd@fistsna.org](mailto:kc2lsd@fistsna.org)  
413 Martin Court, Leonardo, NJ 07737-1317

### **Membership Questions; Renewals; Call Changes; Name, Mailing, and E-mail Address Changes**

Dennis Franklin, K6DF, [membership@fistsna.org](mailto:membership@fistsna.org)  
4658 Capitan Dr., Fremont, CA 94536-5448

### **FISTS Store Manager**

Joe Falcone, N8TI, [fistsstore@fistsna.org](mailto:fistsstore@fistsna.org)  
9880 Musch Road, Brighton, MI 48116

### **Activities Manager**

Dave Bamford, W2DAB, [w2dab@fistsna.org](mailto:w2dab@fistsna.org)  
444 East 75th Street 16F, New York, NY 10021

### **Website Changes (including getting your personal or club web page linked)**

Dennis Franklin, K6DF, [webmaster@fistsna.org](mailto:webmaster@fistsna.org)  
4658 Capitan Dr., Fremont, CA 94536-5448

### **Club Presentation Packets**

Joe Spencer, KK5NA, [kk5na@kk5na.com](mailto:kk5na@kk5na.com)  
3618 Montridge Ct., Arlington, TX 76016-4821

### **Code Buddy Volunteers and Buddies**

<http://www.fistsna.org/codebuddy.html>

### **FISTS Sprints**

Dave Bamford, W2DAB, [w2dab@fistsna.org](mailto:w2dab@fistsna.org)  
444 East 75th Street 16F, New York, NY 10021

### **Get Your Feet Wet Activity Day/G3ZQS Memorial Straight Key Contest**

Karl Zuk, N2KZ, [feetwetlogs@fistsna.org](mailto:feetwetlogs@fistsna.org),  
[g3zqslogs@fistsna.org](mailto:g3zqslogs@fistsna.org)  
15 Flintlock Ridge Rd., Katonah, NY 10536-2510

### **The KeyNote Newsletter**

Bryan Bergeron, NU1N, [keynote@fistsna.org](mailto:keynote@fistsna.org)

## The KeyNote

The Newsletter of the Americas Chapter of FISTS

Issue #3, 2019

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## Americas Chapter, President's Message

by Joe Falcone, N8TI

There is certainly a lot more activity on the CW bands since the FISTS members started to get in the swing of things. As summer ends and the colder weather starts, it becomes the time that we feel like sitting at our operating stations and basking in the warmth thrown off by the cooling fans of our radios.

One of the fun things about ham radio is the satisfaction you feel when you complete a QSO. It could be that you are trying out a new radio or antenna, trying to collect a new state or country, or just trying to make some new friends with a ragchew. It is nice to look back on those contacts and see how your signal was traveling that day or how your antenna was pulling them in. Most of us keep a log, although it is no longer required by the FCC.

Now, I've kept both paper logs and a computer log. In my opinion, a computer log certainly has a lot going for it. Most computer logging programs will automatically, once you put in a callsign, tell you the name, city and state of the person on the other end of the QSO. The programs will also automatically insert the time, frequency, and mode into the log.

While having the computer do most of the work is really great, it produces a logbook that looks, well, like it was done by a computer. Just because the log looks nice and pretty, does not mean it is better than an old fashion paper log.

Where are the coffee cup stains resulting from you having gotten up in the middle of the night to work some rare DX? Or the dirt from having dropped the log under the picnic table when you were on a QRP expedition to the local park? You get the idea. A lot of the memories of the time you made the contacts are just not there.

In light of this, I was thinking what would be the best type or format of a paper logbook? Should it have a larger space to put in comments? Should it be in a spiral bound book? Should it have a place to write the name of the other operator? And by name, I don't mean what the computer picks up. The op you are talking with might be named "Charles," in FCC records, but his name to his friends could be "Charlie," "Chuck," or "Maddog," for that matter.

I would like to have a FISTS logbook printed up. One that is suitable for us CW ops. As a result, I invite everyone to send me logbook page mock-ups. I would then like to have the logbook printed up. The prize would be that if one of your ideas is chosen to be in the final copy of the logbook, your callsign would be noted on the cover. That's sort of cool. It is similar to those fellows who get antennas and QRP radios named after their callsigns.

Please send your ideas to [joe@fistsna.org](mailto:joe@fistsna.org).

## From the Editor (continued)

enjoyment working with a mechanical watch overrides the hassle factor.

My workout routines reflect my respect for the fundamentals. I use Russian kettle bells, steel maces and wooden Indian clubs in my home gym. I'm a staunch advocate of Indian clubs to maintain range of motion, but I've yet to see a set in a gym. I know there's a place for machines but, as with the relatively unlimited bandwidth available to CW operators vs phone operators, I prefer the freedom of movement afforded by un-tethered free weights.

As far as transportation goes, I don't own a car, but given a choice—and unlimited funds—I'd rather have the classic '68 Camaro of my youth instead of a flashy new computer-controlled Tesla. Like a tube-type receiver, the old-fashioned 386 engine is user serviceable and easily modified.

Finally, given a choice between a kit and a prebuilt rig, I'll opt for the kit every time. It's part need to know what's inside the box and part pure enjoyment of the construction process.



**Code Practice**  
From the collection of NU1N

Although this analysis is clearly non-scientific, with a sample size of one, I'm willing to bet that you can at least relate to some of these choices, and perhaps you've made many of these same choices and more. I'd be interested to know what non-mainstream behaviors you've made that at least correlate with your passion for CW.

73, Bryan, NU1N

## CWops Award for Advancing the Art of CW

The purpose of this yearly award is to recognize individuals, groups or organizations that have made the greatest contribution(s) toward advancing the art or practice of radio communication by Morse Code. This is the fourth year CWops has made this Award.

In our last issue, we showed a photo of Larry Fridley, KA8HFN, who received the award on behalf of the FISTS CW Club in recognition of its promotion of CW over the years, and especially for advancing the skills of newcomers.

The other recipient was Hans Summers, G0UPL, in recognition of his development and production of the unique QCX CW transceiver.

Both awards were given during this year's Hamvention in May.



**Riki Kline, K7NJ CWops Award Committee Chairman (left), presenting the plaque to Hans Summers, G0UPL .**

## Hearing Things

by Bryan Bergeron, NU1N

When I returned to CW after more than a decade of communicating primarily via keyboard, I started hearing things. Seriously. I heard Morse Code in the rustling of leaves, in the white noise produced by water hitting the shower curtain in my bathroom, and in the static of the 20m band in the middle of the night.

On a strictly physiological level, this makes sense. The mind typically finds what it's looking for, even if it has to stretch reality a bit. It's the same with CW. It's an unnatural signal upon which the brain focuses its powerful pattern-matching machinery.

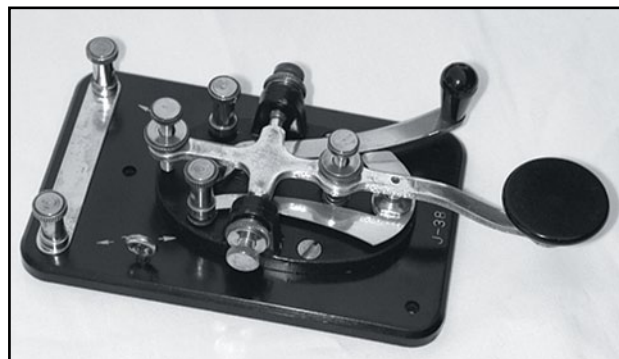
Fortunately, the brain is not only a master pattern-matching organ, but it's a learning organ as well. Eventually, my brain learned that noise was, well, noise. I think it uses the context of me sitting in front of a transceiver to match CW signals. In my case, the transition was a few weeks. And I can't say that the time wasn't enjoyable. It was more of a skit in experimental psychology class for undergraduates. But it's good to be back in the "real" sensory world, where I can largely ignore noises and focus on the real problems at hand.

73, Bryan

**We need articles and reviews for  
*The KeyNote!***

**NOTE: Image files need to be high resolution  
JPGs or 300 dpi TIF files at least 5" wide.**

**Send your Word or text files to  
[keynote@fistsna.org](mailto:keynote@fistsna.org)**



**A J-38 Triumph-style hand key by Lionel company, the same Lionel that made toy trains.  
From the collection of K6DF**



# WELCOME NEW FISTS AMERICAS CHAPTER MEMBERS

Call	FISTS#	First Name	S/P/C	Call	FISTS#	First Name	S/P/C
W2NWU	19334	Doug	NJ	N8ND	19377	Michael	OH
K5RQI	19335	Michael	VA	KH6SKY	19378	Jim	KY
WV0I	19336	Monte	MO	KC8PXB	19379	James	OH
AI6SL	19337	Wolfgang	CA	N8LSA	19380	Jodie	MI
AG7UU	19338	Edwin	OR	KD8FO	19381	David	OH
K7JF	19339	Jeff	WA	KD8DNS	19382	Ryan	OH
W4JPG	19340	Jeff	TN	K4TG	19383	Jerry	KY
K4EVT	19341	Jeffery	NC	WT8WV	19384	Spence	WV
AF4QK	19342	Kenneth	NC	KD8DEU	19385	Allan	MI
WA4NSV	19343	Ken	FL	KD2CQ	19386	Rich	NJ
N2AMP	19344	Russ	NY	KE8LZD	19387	Glenn	OH
KG8V	19345	Bernard	MI	KD8AUJ	19388	Ted	OH
VE3UG	19346	Rick	ON	WA3UMY	19389	Peter	MD
N3UKO	19347	Tom	MD	N9BNN	19390	Mike	IN
KG9LB	19348	Jim	VA	WB8YHD	19391	Frank	OH
W3II	19349	Mark	PA	N4ZDK	19392	Gary	PA
K3DQB	19353	Walt	PA	KE0IGH	19393	Arie	CO
K8SW	19350	Jack	AL	KK4WJO	19394	Gary	TN
WB4CMA	19351	James	TN	KE7MRT	19395	David	AZ
KD6LTA	19354	William	CA	KJ4YM	19396	Mark	GA
KD6LRY	19355	Eli	CA	AF4K	19397	Bry	FL
ND1J	19352	David	GA	N9XA	19398	Mike	TX
KD6OMV	19356	Norman	CA	KJ4ZN	19399	Steve	AL
WW4JF	19357	John	TN	K5UNX	19400	Wayne	AR
W2RMB	19358	Roger	NY	KM6SYX	19401	Greg	CA
WA2JSG	19359	Curt	NJ	KJ4KPW	19402	John	MD
K8YH	19360	John	OH	KJ7GFW	19403	Brad	OR
N7CZ	19361	Robert	IN	KN4FAD	19404	Dennis	VA
K7NJ	19362	Richard	UT	KA3TTT	19405	Austin	PA
NZ6T	19363	Chris	VA	WR6D	19406	Richard	CA
KC8RJW	19364	Jeremy	OH	NV1U	19407	Thomas	FL
KC9TYA	19365	Mark	IN	K7CLR	19408	Cindy	AZ
WA8ZIP	19366	Mark	OH	KE5PYF	19409	David	TX
KC0RPS	19367	Jim	CO	VE2HO	19410	Denis	QC
KC7MRY	19368	John	PA	AA3BR	19411	Peter	MD
KD8PZ	19369	Lauren	FL	W0JKG	19412	James	MN
KE6BXT	19370	Don	CA	K2RAH	19413	Rich	NY
W8ASA	19371	Ken	OH	KA2IRQ	19414	Marlo	NJ
KC9EI	19372	Dave	CA	KC0REL	19415	Alexander	WA
WA6POZ	19373	Gerry	FL	N8KDC	19416	Ken	MI
KC9UVG	19374	David	IN	NB7B	19417	Gary	UT
KC8SAA	19375	Joseph	OH	AA9SI	19418	Jacquelyn	WI
WD8IXO	19376	Scott	OH	VA2AGW	19419	Andre	QB

(continued on page 7)

## New Members (continued)

Call	FISTS#	First Name	S/P/C	Call	FISTS#	First Name	S/P/C
WX1FLY	19420	Jerry	CA	K0JD	19462	John	WI
KG6NRV	19421	Bill	CA	W7RPK	19463	Peder	OR
W0GIN	19422	Luther	ND	N0JBF	19464	Richard	MO
K6DR	19423	Jesse	CA	WB2POP	19465	Ira	NJ
NY2X	19424	Frank	CA	KD9MED	19466	Michael	IL
K0EH	19425	Maurice	IN	KC3NDZ	19467	Raymond	PA
WX4TW	19426	Thomas	NC	KN4RFL	19468	Keith	KY
WM4X	19427	Mike	VA	AF5AO	19469	Charles	TX
KD6DXA	19428	Zachary	ID	N8GOU	19470	John	MO
KL0NP	19429	William	WA	N5CX	19471	Bill	TX
KG9NF	19430	Randy	WI	WB6DNL	19472	David	CA
WD4EGT	19431	Don	FL	NN7RM	19473	David	UT
KE8IVW	19432	Albert	OH	KJ4VTS	19474	Dale	VA
K1LHO	19433	Michael	CT	W9KMF	19475	Richard	WI
KC1KQW	19434	Jack	RI	KW1Q	19476	Ron	ME
KC2FKM	19435	Juan	TX	W4JF	19477	Joey	SC
WA5ZBT	19436	Tom	TX	KO4MC	19478	David	TN
N6HDV	19437	Ron	CA	KK6RHW	19479	Bill	CA
NN4SS	19438	Larry	SC	VE2BJG	19480	Michel	QC
KA1ULN	19439	Niece	MA	W4KXQ	19481	Sonny	FL
W1HAI	19440	Joe	MA				
N4KNZ	19441	John	TN				
K1SEI	19442	Tage	CT				
W3MJ	19443	Bill	PA				
K2AJY	19444	Gary	MA				
KE0UKS	19445	Mark	MN				
K6DBF	19446	Michael	CA				
N1BBT	19447	Brian	MA				
WB2JSY	19448	Thomas	NY				
KI5FPW	19449	Josh	TX				
WN9PMC	19450	Amanda	IL				
WB3EYB	19451	John	PA				
W2JDT	19452	John	NJ				
AG7WI	19453	Edmond	WA				
N6JCB	19454	John	CA				
N3WZO	19455	Pete	OH				
N4ZKS	19456	Jeffery	MI				
KC9IH	19457	Keith	IL				
KE0VPA	19458	John	IA				
KX4P	19459	John	NC				
W7BCW	19460	Bruce	WA				
VE7WD	19461	Kevin	BC				

March 16, to August 14, 2019



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## FISTS AWARDS

By Dennis K6DF

Congratulations to all who earned operating awards from May 16, 2019 to August 15, 2019.

New Members can earn a free FISTS Club Key Patch for making their first 10-minute CW QSO with any FISTS member on any band, so get on the air and make your first 10-minute QSO with a FISTS member to earn your free Key Patch!

### Key Patch Earned List: New Member—QSO with FISTS

ND1J David—QSO with AA9MU  
KE7MRT David—QSO with K6DF  
AA9SI Jacquelyn—QSO with KC9UL  
KJ4KPW John—QSO with KC8TQP  
WX4TW Thomas—QSO with AH6AX  
KX4P John—QSO with N1PVP  
WA2JSG Curt—QSO with AF4K  
AF4K Bry—QSO with WA2JSG  
NN7RM David—QSO with K6DF

Award certificates are available free of charge to all current club members, so dust off those keys and get on the air and start making contacts. Try using the free “Log Converter” program to track your club awards, and it’s also a good general logging program as well. The author of Log Converter, Graham G3ZOD, is constantly providing updates and improvements to the program. This FREE software will track your FISTS awards automatically and allow you to send in your award logs to the FISTS Awards Manager at the click of a button! The best thing about it is...it’s FREE! Log Converter is available for download on the Americas Chapter web site. Look for the download link on the main web page just below the “Welcome New Members” list.

Be sure to check the Americas Chapter web pages for updated awards information and how to apply for them:

<http://www.fistsna.org/awards.html>

If you have any award questions or suggestions, send e-mail to me at: [awards@fistsna.org](mailto:awards@fistsna.org).

I wish you good DX during 2019.

73, Dennis K6DF ...\_. \_\_\_\_\_ (30)

### FISTS AWARDS ISSUED: May 16—Aug. 15, 2019

**Century Award:** G0BON, IK0IXI, M0DHP

**Silver Award:** W1LIC, IK0XI

**1 X QRP Award:** MI0WWB

**Spectrum Award:** KE5HL, MI0WWB

**Spectrum Sticker:** KE5HL (20 Mtr)

**Perpetual Prefix Award:** IK0IXI

**WAS Award:** NP3K

**Prefix 50,100, & 150 Stickers:** NP3K

**Millionaire Award:** IK0IXI

**2 Million Award:** IK0IXI

**3 Million Award:** MI0WWB

**4 Million Award:** NP3K

**11 Million Award:** G4LHI

**19 Million Award:** OK1KW



## It's Just Like Riding a Bike!

by Joe Falletta, W6UD0

We've all heard the old saying, "It's just like riding a bike; you never forget." Well, I may be the only person you'll ever meet who actually forgot how to ride a bike. That's a long story, but one thing it seems I've never forgotten was how to work CW.

I hadn't had my own ham shack for some 20 years, only operating voice modes occasionally from club stations or friends' shacks.

Then came the day some 20 years ago now when I was home sick from work. I'd slept pretty much all day and was looking for something to do when I found an old copy of the ARRL Code Tape. I put it on my cassette player and started it at the beginning to re-familiarize myself with all the characters. I stayed with it as it went into code groups and plain text at increased speeds. By the time the tape ran out I realized I was still copying 12 wpm.

That same year a buddy had given me an old Heath HW-16 novice transceiver. I hadn't done much with it, but now I threw up some wire for an antenna and started searching the bands for signals I could practice on. This was getting exciting, especially after I discovered Simon Twigger's, AA9PW, excellent website [www.aa9pw.com](http://www.aa9pw.com). Simon offers Morse Code training from the initial learning to practice at speeds up to 50 wpm in standard and Farnsworth timing; code groups, plain text, sample QSOs, and even headlines from sources around the world. (He also offers the latest sample tests for the FCC ham radio exams.) In a few months I was back to copying around 25 wpm. A short while later, a good friend gave me a great deal on some used gear and I was back on the air with a random wire antenna strung through the trees.

You may think it's been too long; that as much as you may want to there's no way you'll

ever be able to operate CW again. But you just never know. It's been almost 20 years since I became "Radio-Active" again, and, at 71 years old, I still enjoy rag chewing, working contests, and chasing DX...all on CW.

On the other hand, I still can't ride a bike!

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## Q-Signals, 100 Years Ago

By R. Jay Goos, WDØEGC

I appreciated Bryan Bergeron's article, where he lists 22 common Q-signals. I thought it would be interesting to describe some of the Q-signals that were in use about 100 years ago. My source is the 1923 book, *Radio Simplified* by Lewis Kendall, Jr., and Robert Koehler. The book ends with a list of 49 Q-signals. While many of the common ones (QTH, QRN, QRM, QRS, QRU, etc.) listed by Bryan mean exactly the same as they did 100 years ago, many of the Q-signals used 100 years ago illustrate how much radio has changed.

### Some of the Q-signals in 1923 were associated with navigation at sea:

QRB? QRC? and QRD? Meant, "What is your distance?" "What is your true bearing?" "Where are you bound for?"

QSN? meant "Are you in communication with land?"

### Others had to do with the passing of radiograms:

QSG meant "Transmission will be in series of 5 messages."

QSH meant "Transmission will be in series of 10 messages."

QSK? meant "Is the last transmission cancelled?"

QSR? meant "Will you forward the radiogram?"

(continued on page 10)

## Q Signals (continued)

QTA meant “Repeat the last radiogram.”

**Others are amusing in the context of how we operate today:**

QRH? meant “What is your wavelength in meters?”

QSW? meant “Shall I increase my spark frequency?”

QSX? meant “Shall I decrease my spark frequency?”

**And others, just leave me scratching my head:**

QSF? meant “Is transmission to be in alternate order or in series?”

QTF? meant “What is my position?”

So, just a little bit of radio history, as illustrated by Q-signals.

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## My Journey Into CW

By Dennis L. Green, KB8CS

I began my journey to CW by joining a group of frustrated CBers working on HAM tickets in the mid 1970s. I was attracted by their using HAM protocols on CB sideband to have orderly discussion in a large group. I was the last to start and the first with a license, and my first license was a General, not Novice. As an engineer, I did some research and heeded the warnings about the proper way to learn code. I bought one of those courses on cassette that took me through the alphabet, shortest to longest letters, numbers and punctuation. The most important part of learning code is to learn it by the rhythm. If you learn by memorizing dots and dashes, you will hit the wall at 10 WPM or less. The reason the General

test was set at 13 WPM is that you cannot count at that rate. Credible courses all teach characters at 13 and only expand the spacing between them.

I initially thought that code was too difficult and required some special talent until a mentor pointed out that everyone recognizes the opening of Beethoven’s Fifth, dit, dit, dit, dah. “V” is Roman numeral 5, and that’s the sound of a Morse Code V. I didn’t have to count longs and shorts—I recognize the rhythm at any speed. After going as far as the tape course could take me, I then bought a MFJ trainer and listened to random groups. I pushed the character speed past 13 before completely closing the gap. By the time I was listening to the test at 13 WPM and standard spacing, it sounded slow and strange because it was spelling out actual words. I went back to the trainer and aced my Extra test, but I never learned to enjoy CW. I never learned the secret of copying behind or remembering it in my head, so the speed writing became too much work, not to mention that my penmanship never recovered from learning to write at 20 WPM.

What I describe is known as the “Armstrong” method and is backed by research as to its effectiveness. All of the instructors in our local club followed it. I suppose one could learn by sending as well as receiving, but the essential warning is that learning characters at less than 13 will create a wall for most people, and most fail to get over it. My group of friends conform to that prediction. Most took years to make General or gave up. I had my General in about five months from when I put that tape in the player. I hope my experience helps you to plan your move to your next level of code proficiency.

## CW and Me

By Glenn R. Kurzenknabe, K3SWZ

In 1960, my dad bought me an ARRL License Manual and a Radio Amateurs Handbook, and I began to study. I built a 2 transistor Code Practice Oscillator from a kit that my dad ordered, using a soldering iron better suited for sheet metal. Through some miracle it worked! I discovered that learning the code took more effort than just thinking about it!

Fast forward to the beginning of 10th grade (1961), when I met Ed Cox, who had moved into the area from Pittsburgh over the summer. We were both at about the same place in our effort to master the code. We started riding each other about the code and things started to fall in place for both of us.

Another thing that happened while I was in the basement (my dad called it the “hole”) working on the code with my AMECO code record, was my dad sat down and started copying along. I asked him how he knew the code. I knew that he had been a pilot in WWII, but didn’t know about his proficiency with Morse Code. He dug into his files and showed me a certificate for 10 WPM from the U.S. Army Air Corp. Pilots had to know CW to follow radio navigation beacons. He got back in the groove at 5 WPM with no problem. He went on to become KN3UKO and then K3UKO (SK). His call is currently held by the Central PA Contest Club of which I am the trustee and president.

I had a physics and chemistry teacher, Dave Anwyll, W3HCC (SK) who arranged for Carl, K3RMD (SK) who was in the Navy and stationed at the Mechanicsburg Naval Supply Depot to test Ed and I for our Novice Licenses in February 1962. In April, I became KN3SWZ and Ed became KN3SWJ (now KE3D in Texas). Dave was also a pilot and left teaching in the middle

60s and became an airline pilot. That man had so much influence on my life in so many ways! I had ultimate respect for him. He was a super man in my world. I was able to stay in regular contact with him until he died in 1998. RIP Dave, you were a wonderful teacher and great friend.

A few weeks after receiving my Novice License, I was invited to attend a meeting of the Harrisburg Radio Amateurs Club. My new friend John, KN3SFW (now KØXX) made arrangements for some unknown person to pick me up and take me to the meeting. Can you imagine that happening today?

I walked into the room and was in awe. There were hams of all ages and knowledge levels and they all welcomed me, a dumb kid who had been a ham for about 3 weeks! The program that night featured a club member, Ray Green, W3UDH/KM4HQ (SK) who had just started Greenray Industries to build crystal oscillators and frequency standards. He talked about basic transistor theory. This guy must be a genius, I thought! Little did I know that I would work for Ray for some 17 years! I also went on to serve as president of the Harrisburg Radio Amateurs Club in 1968 and 69.

I joined the 271st Mobile Communications Squadron of the PA Air National Guard in December 1966, to fulfill my military obligation. When the First Sgt. found out I was a ham and worked in the electronics industry, he got out the enlistment paperwork on the spot. While attending Electronics School at Keesler AFB, MS, I operated the club station, K5TYP. Moreover, as a ham, I was able to talk my way into a promotion, even though I didn’t have enough “time-in-grade”.

I had no way of knowing that I would meet my XYL, Barbara, through ham radio. No, she

*(continued on page 12)*

## **CW and Me** (continued)

was not a ham, but we were introduced by mutual friends who were hams.

My parents always said they felt comfortable about ham radio. If I was not in our basement, they knew I was in someone else's basement, morning, noon or night playing with radios or with other hams at a club meeting or such. When I got on the air in the Summer of 1962, it was with some pretty basic equipment. I used a crystal-controlled Knight T-60 transmitter with a dipole antenna and a surplus Navy receiver (RBO?) that weighed a ton. It had almost no band spread on 40 meters, but somehow I made contacts. My dad and I somehow figured out how to hook up a Heathkit Q-Multiplier, which really helped an otherwise pretty poor receiver.

I fell in love with DX, although my best DX as a Novice was a VE3! As the saying goes, the rest is history. Upgrades to Amateur Extra, DXCC Honor Roll No. 1, RTTY, Moonbounce, OSCAR, Contesting, DXpeditions, etc. I have met so many wonderful people over 57 years of ham radio. Some have become very close friends and some just friends passing in the night. I honestly don't know what my life would be like at this moment, had I not discovered ham radio. It has done so much for me in so many ways.

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## **How I Learned CW**

by Russell Young, WA2VQV

I learned the Morse Code to fulfill one of the requirements for First Class Scout in the Boy Scouts of America. I didn't use a key, but sent and received Morse Code using surplus Army Wig-Wag flags. In 1954, I joined the U.S. Air Force and at the end of basic training at Sampson AFB

in Geneva, N.Y., I took classification tests to determine my AF career field. At an interview with a grizzled old Master Sergeant I told him I would like to be an Airborne Radio Operator as I had always been interested in radio and wanted to fly.

My orders read "Airborne Radio Operator school at Keesler AFB" in Biloxi, MS. When I arrived at Keesler, I was told "The needs of the Service come first so you WILL be a Radio Intercept Operator." So, for three hours every day for 26 weeks I copied Morse Code. 20 WPM was needed to graduate and I had passed 23 WPM and was working on 25 WPM when I left Keesler. Before going to Germany for three years to copy Morse Code, I was sent home on a 45 day "Delay en-route". My friends all thought I had deserted. One friend's father told me that some men in black suits came and questioned him about me and he wanted to know what I had done to merit that kind of investigation. I told him it was just a CBI (complete background investigation) and not to worry.

After discharge I decided to try for a ham license. I had gone to a store to buy a typewriter for college and the store also sold Vibroplex bugs. I bought a used left-handed Vibroplex Original for \$12 in addition to the typewriter. Next I obtained a 1961 ARRL handbook and decided to build a 30-Watt 80/40/15-meter CW transmitter. I was playing around sending with my new bug on 80 meters, using a 60-watt light bulb for a dummy load and a neighbor, Bob, W2KI (SK) heard me. He lived down the street from me and gave me the Novice test. I became WV2VQV. Three months later I passed the General test at the FCC building in NYC and became WA2VQV. I've been enjoying CW ever since.

## CW Mental Images

By Dennis Franklin, K6DF

Amateur radio reminds me a little of going fishing. One never knows what they are going to hear coming back to their CQ calls. The answers you get sometimes depends on your bait, such as using a special call, operating a special event, or you might be operating from a much needed DX location. If the band conditions are just right, you may be in for surprise when that rare DX station answers your call. Of course if that happens, all the other hams on the band looking for special fish will be straining at the bit to contact that station once you complete the QSO and send your final 73's. Once you get and complete that first CW nibble on your wire antenna, you will know that CW is a rather unique way to communicate. Of course, using CW does not allow one to see the other person, nor hear their voice, which makes it difficult for you to imagine what the other operator looks like. The only way you can visualize this person is to form a mental image of them from the information they send to you via the dots and dashes you hear during your CW QSO. Some of the items that help us form this image are their name, QTH, age, ham years, occupation, other hobbies, sense of humor. Additional things, like their keying speed, spacing, and rhythm will also help. Let's face it, forming mental images is something we've all done at one time or another when we have a CW QSO.

Let's look at a few names such as, Tom, Nigel, Pam, Al, or Esther. Most names such as these will give you an idea as to whether you are chatting with an OM or a YL. Most YLs usually make it plain that they are a YL at the beginning of a QSO, whereas some names such as Pat as well as some DX operator names might be either. I do need to make one statement about YLs at this point. Over the years, I have found that most YLs

have by far the best CW FISTS. Sorry guys...but YLs have much better rhythm and spacing when using CW. A prime example of this was Esther KA4IFF (now a silent key) she had a FIST that was simply a pleasure to copy.

Getting back to "mental image," lets see what you can come up with from the data of a typical CW QSO.

You're calling CQ at about 18 WPM and another op answers your call at 16 words per minute. You slow your speed and start the QSO. The op sends his name as Hal. Your mental image forms using the name Hal and the fact that you conclude that this is an OM who's full name might be Harold. The next item you receive is his QTH is Oakland, CA. Your image changes from a middle-aged man to maybe a younger person with lighter color hair and possibly into surfing, since he's from CA. Next, he sends that he is ex-Navy. Uh-Oh...a sailor, so your image changes to someone with darker hair and maybe not so young. The QSO continues with each of you exchanging what type of work you do and he says he worked for Cutter Labs as a pharmaceutical production engineer and is retired for the past 18 years. Well now, that info sure changes my image of this person to a retired older man with grey hair! Of course at this point in the QSO I am very impressed because anyone who can spell the word "pharmaceutical" let alone send it via CW without making a mistake is simply an excellent CW op in my book! The image changes once again (more grey hair) when you learn that his age is 79 and he builds HO- and N-scale model trains and does a lot of amateur photography. I tell Hal that I am starting to get a bit of grey in my hair most likely due to my two kids and Hal comes right back with, "I am bald from all the young girls running their fingers through my hair when I was a young man, so now I have a

*(continued on page 14)*

## CW Mental Images (continued)

lot more face to wash.” My image changed again to an older man with some grey hair around the edges. I also find that Hal has a very good sense of humor.

Now that you have an image of what Hal looks like, let’s do the same thing with another CW QSO and see what image you can come up with.

This time a station answers your CQ at the same speed and says their name is Dennis, QTH is Glendale, AZ and his code is very rhythmic and steady. On the very next turnover Dennis says he needs to go pick up his XYL because he’s rather late to pick her up and needs to QRT quickly.

What mental image did you come up with for this CW QSO? I would venture to say that this was an OM and I could guess that he is probably going to be sleeping on the couch tonight! There is also the possibility he might be paying a speeding ticket as well. Since there was not a lot of information exchanged during this QSO it is rather difficult to develop much of an image for this person.

Thinking about these two CW QSOs, which one was more interesting? Most likely it was the first one, since you learned something interesting about that person. You may have also found something that the two of you had in common, such as an interest in photography or model trains. Which station would you like to contact again for a CW chat?

This little exercise shows that taking the time to get to know the other person may prove much more interesting than the usual name, RST, QTH, my number is xxxxx, 73, type of QSO. It certainly is much more fun to have a conversation with the other op than to come away from a QSO with nothing but a number to enter into your logbook. I have used CW for many years

and met many hams all over the world. Most of which I’ve never met in person, never chatted with them on the telephone, and yet, I consider them friends. This is what amateur radio is really all about...

Yup, calling CQ is like throwing a your line and hook into a pond in hopes of catching a fish ...I wonder what’s biting on 20 meters today?

### You Have a Story to Tell!

How did you get into ham radio? When did you learn Morse Code and how? What was an interesting event that you experienced using Morse Code? Do you have some unusual equipment you want to tell members about?

We want to hear your story, but if you are a shy author, you may find an article written by Dale Halloway, K4EQ, in a previous issue can help you put that story together. The link to that article can be found on our web site Home page <https://www.fistsna.org> under “Old KeyNotes.”

Don’t be shy. Tell us your story!

## Typical QSO for the New CW Operator

by Joe Falcone, N8TI

I have been asked if there was pattern CW QSO that a new CW operator could follow for the first few QSOs. I thought this question was quite good, considering the first QSOs on CW can be nerve-racking. It is hard enough to copy the code, without having to worry about what you are going to say in the heat of the moment. Therefore, the following is a typical CW QSO that a person who is just starting out on CW might want to use. In this example, I am W8JOE and you are W8YOU.

*CQ CQ CQ de W8JOE W8JOE W8JOE K*

*W8JOE W8JOE de W8YOU W8YOU KN*

*W8YOU de W8JOE GE OM. You are 599. QTH Detroit, MI Detroit, MI. Name is Joe, Joe. W8YOU de W8JOE KN*

*W8JOE de W8YOU Tnx for RPT U R 599 599. QTH Cleveland, OH Cleveland, OH. Name is Jack, Jack. W8JOE de W8YOU.*

*W8YOU de W8JOE. FB Jack. Rig here is KNW 520. Ant is Dipole 30 ft up. I work as a police officer near Detroit. Been a ham for 30 30 years. W8YOU de W8JOE KN*

*W8JOE de W8YOU. Rec all, Joe. HV to go now. Nice talking wid you. Hp to CU AGN. 73, 73 W8JOE de W8YOU. SK. Dit dit*

*W8YOU de W8JOE. OK Jack. 73. C U L. W8YOU de W8JOE dit dit*

By now you get the idea. I think that the important idea here is that if you are a new CW operator, you may want to write down some phrases you can send.

Usually, everyone will acknowledge that they hear what you had to say by sending something like, "FB on all," or "OK, Jack," or "QSL." It is nice to know that the other copied you. You can ignore the punctuation marks in the example. A pause will work unless you actually want the comma or end a sentence with a period. The "Break" pro-sign is used a lot (BT).

Normally people will mention their rigs, antennas, jobs, keys, the weather or any of the subjects you would talk about over the back fence with your neighbor. For your first few CW contacts, the above will get you through the first few minutes. Of course, if you listen to actual QSOs you will hear what I am talking about. Most people want to know your name and location, along with a signal report. Then, it just depends. I find that everyone seems to be happy to go beyond the rig, weather and antenna discussion. Of course, if a hurricane just blew through, the weather may be something that is extraordinary or if you have a vintage rig, then that may be more exciting than normal. The above is just intended to get you through the first few minutes of your first QSOs.

73 de Joe

### Note

Old issues of the *KeyNote* newsletters were generously donated to the club by Paul Carreiro, N6EV #1470, and are being made available in PDF format for downloading from the Newsletter web page at <https://fistsna.org>.

# FISTS STORE

## New Items

We have some new items for sale in the FISTS store. To purchase, make check payable to "FISTS Club." Mail your check with your order to: **Joe Falcone, N8TI, [fistsstore@fistsna.org](mailto:fistsstore@fistsna.org)**  
**9880 Musch Road, Brighton, MI 48116.**  
All prices listed include shipping in US only. For Canada, Mexico, and DX, contact Joe for additional shipping costs.

## Mugs

### New—Clear Glass 14 oz Mug

Mug has FISTS Key logo on both sides. Limited quantity is available on the FISTS Store web page.



SKU# NA022MUG  
Cost: \$20

### New—Dinner Mug

White with the colored Key logo. Available in September.

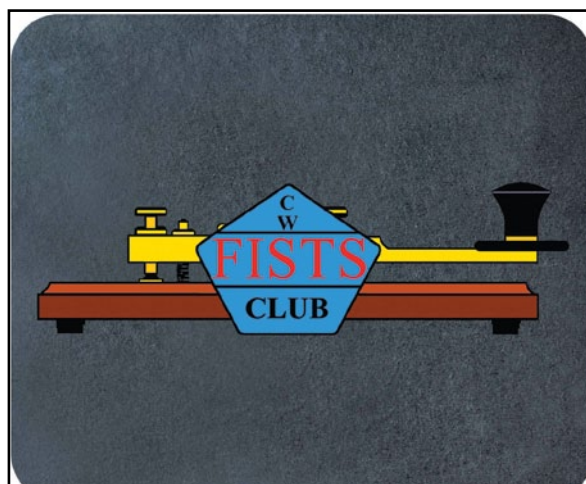


SKU# NA023DM  
Cost: \$14.00

## Mouse Pad

### New—FISTS Key Logo Mouse Pad

Dark grey mouse pad is ¼" thick.



SKU# NA020MP  
Cost: \$5.00



# SUMMER SPRINT RESULTS

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## FISTS Summer Slow Sprint

### QRO Category—Top Three Finishers

Call	Name	State	FISTS#	Points	Score
WX4TW	Tom	NC	19426	12	36
K6DF	Dennis	CA	3076	11	33
NØMPM	Mike	IA	19306	5	5

### Club Category

NO LOGS RECEIVED

### QRP Category

NO LOGS RECEIVED

## SOAPBOX

NØMPM—First FISTS Sprint, 40 Meters rough due to QRN. Will do better next time!

K6DF—Only got to work the last half of this Sprint. Did not find/hear many FISTS stations on the air. Looking forward to hearing and working more FISTS stations during the next Sprint. 73, Dennis K6DF

## FISTS Summer Unlimited Sprint

### QRO Category

Call	Name	State	FISTS#	Points	Score
K2HT	Dick	MO	11565	5	5

### Club Category

NO LOGS RECEIVED

### QRP Category

NO LOGS RECEIVED

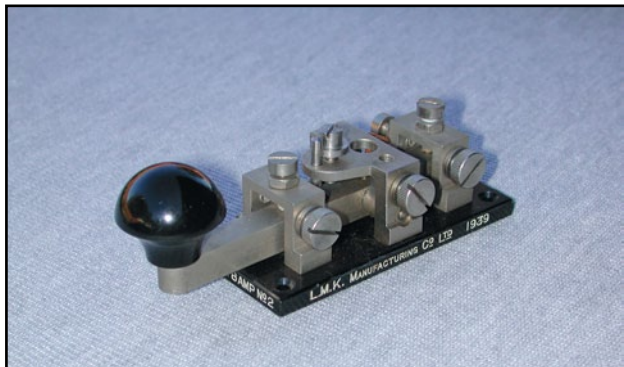
## SOAPBOX

K2HT—Hurricane Barry QRN very bad at my QTH, not many contacts.

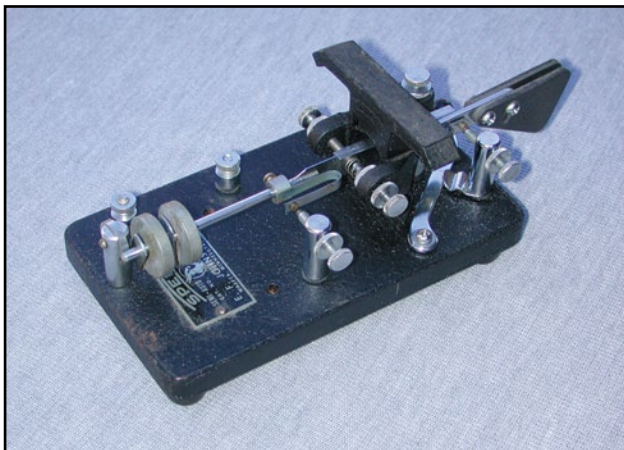
# MISCELLANEOUS

## Photos

The following photos are from the collection of K6DF:



**The 8 Amp NO. 2 key is a British-made key by L.M.K. Manufacturing Co. Ltd. from 1939.**



**The Speed-X key with the Les Logan trademark "T" handle is an E.F. Johnson Model 114-500. It was produced sometime in the 1949 to 1952 timeframe during the transition between Les Logan and E.F. Johnson.**



**The J-51 is a very unusual key. It was used to key the SE-11 signal lamp. A long cord connected this key with the signal lamp so the operator could put some distance between himself and the lamp—enemy soldiers would shoot at signal lamps in hopes of hitting the lamp or the operator.**

## Letters to the Editor

*Dear Editor,*

*I was happy to read that FISTS is considering the commissioning of another key. I vote for a big and heavy straight key—something with a nice smooth action. Maybe an oversized version of the English 8A WW2 key. I would gladly pay \$300 for such a key.*

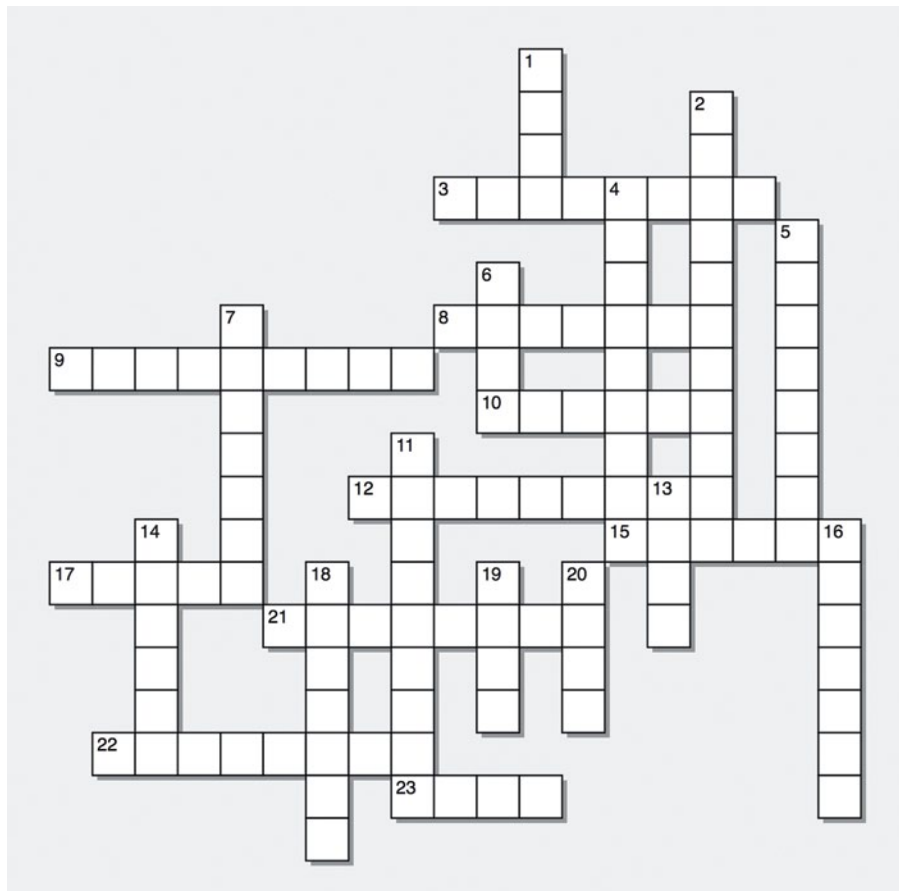
*Thank you and 73*

Carl W. Davis, W8W2

# FISTS PUZZLE

Just for fun, test your knowledge of CW in this puzzle. Answers are below.

This issue's crossword theme is ANTENNAS



## ACROSS:

- 3) Half of the dipole antenna
- 8) A type of a screen array
- 9) A number of dipoles in a vertical line
- 10) Simple horizontal antenna
- 12) Crossed-dipole antenna
- 15) UHF antenna with a 90° reflector
- 17) Half-wave vertical-matched with  $\frac{1}{4}$  wave stub
- 21) Long-traveling wave antenna suspended near ground
- 22) Not horizontal
- 23) Multi-element directional antenna

## DOWN

- 1) Waveguide-connected antenna
- 2) Very large circular antenna array
- 4) Type of dish
- 5) An opening in the surface of a waveguide
- 6) Multi-element loop
- 7) Half of a biconical with flat disk on top
- 11) Two-dimensional flat biconical antenna
- 13) A single turn circular antenna
- 14) Looks like the Chevrolet logo
- 16) Diamond antenna
- 18) Wire wound in the form of a cork screw
- 19) Horizontal dipole folded into a circle
- 20) Used on airships

**ACROSS:** (3) Monopole, (8) Curtain, (9) Collinear, (10) Dipole, (12) Turnstile, (15) Corner, (17) Jpole, (21) Beverage, (22) Vertical, (23) Yagi  
**DOWN:** (1) Horn, (2) Wullenweber, (4) Parabolic, (5) Aperture, (6) Quad, (7) Disccone, (11) Butterfly, (13) Loop, (14) Bowtie, (16) Rhombic, (18) Helical, (19) Halo, (20) ZEPPE

# SPRINT INFORMATION

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FISTS Sprints are a great way to meet other FISTS members, collect FISTS numbers, and have a lot of fun. We hope to work you in the next FISTS SPRINT.

## OBJECTIVE:

To exchange specified information with as many FISTS members as possible using Morse Code only, and within the time frame stipulated.

## PARTICIPANTS:

Any properly licensed amateur radio operator, FISTS member or non-member is invited to take part in the contest. At least one of the two stations in each QSO must be a FISTS member.

## DATE AND TIME:

**SPRING SLOW SPEED SPRINT**—runs from 1700 UTC to 2100 UTC on May 4, 2019.

**SPRING UNLIMITED SPRINT**—runs from 1700 UTC to 2100 UTC on May 11, 2019.

**SUMMER SLOW SPEED SPRINT**—runs from 0000 UTC to 0400 UTC on July 6, 2019.

**SUMMER UNLIMITED SPRINT**—runs from 0000 UTC to 0400 UTC on July 13, 2019.

## BANDS:

Operation is limited to the following amateur bands: 3.5, 7, 14, 21, and 28 MHz amateur bands. Look for other participants around the FISTS frequencies: 3558, 7058, 14058, 21058, and 28058 kHz.

Work stations only once per band.

## ENTRY CLASSES:

There are three entry classes: Club, QRO, and QRP.

QRO: Over 5 watts–100 watts output power. 100 watts is the maximum output power allowed.

QRP: 5 watts output power or less.

Club: (regardless of power).

Entry class **MUST** be shown on logs to be considered for entry in a particular class, or will be assumed QRO. An entry must be ONE class only, no combination of classes is allowed.

## EXCHANGE:

The following information must be exchanged by both stations to count as a valid contest QSO:

*FISTS members:* RST, U.S. state/Canadian province/DXCC country, first name, FISTS number.

*Non-FISTS members:* RST, U.S. state/Canadian province/DXCC country, first name, output power.

## DX COUNTRY STATUS:

U.S. states and Canadian provinces are those states and provinces that are contiguous and found within the North American continent. DX are those entities listed in the current ARRL DXCC publication, other than the above.

## MULTIPLIERS:

Each U.S. state and Canadian province counts as 1 multiplier. Count each only once, no matter how many times worked. Each DXCC entity counts as 1 multiplier. Count each only once, no matter how many times worked.

## SCORING:

Each QSO with a FISTS member: 5 QSO points.  
Each QSO with a non-FISTS member: 2 QSO points.  
Final score is total QSO points times multipliers.

## CERTIFICATES:

Certificates will be awarded to the first, second, and third place finishers in each Entry Class.

## LOG SUBMISSIONS:

All log entries must be received within 14 days after the Sprint to be considered valid. Logs not sent to the proper address will not be considered for entry. The logs will be spot checked for accuracy and correct scoring procedures.

All logs **MUST** contain the following information to be considered for entry: Your name and call sign. Club name if entry is for a club. Your FISTS number if a member. Entry class. Your claimed score. List of claimed multipliers. The entry form is the best way to record this information.

## ELECTRONIC LOGS:

We accept electronic logs in standard Cabrillo format or ASCII text files. If you're not sure about your format, please contact me before the contest entry deadline. E-logs are sent to [kc21sd@fistsna.org](mailto:kc21sd@fistsna.org) ONLY.

## PAPER LOGS:

Send log and forms to: FISTS Sprint Log, c/o Dave Bamford, W2DAB, 444 East 75th Street 16F, New York, NY 10021.

# FISTS SPRINT ENTRY FORM

Entry Class: QRO \_\_\_\_\_ QRP \_\_\_\_\_ CLUB \_\_\_\_\_

SCORING: \_\_\_\_\_ QSO points X \_\_\_\_\_ multipliers = \_\_\_\_\_ Final Score

CLUB Name \_\_\_\_\_ FISTS Club # \_\_\_\_\_

Name \_\_\_\_\_ Call Sign \_\_\_\_\_ FISTS # \_\_\_\_\_

Address (Street, City, State, Zip Code) \_\_\_\_\_

E-mail Address (optional) \_\_\_\_\_

## MULTIPLIER CHECK-OFF LIST

1	2	3	4	5	6	7	8	9	0	VE	DX
CT	NY	DE	AL	AR	CA	AZ	MI	IL	CO	NB	NF/LB
MA	NJ	MD	FL	LA		ID	OH	IN	IA	NS	NT
ME		PA	GA	MS		MT	WV	WI	KS	PE	YK
NH			KY	NM		NV			MN	QC	BC
RI			NC	OK		OR			MO	ON	
VT			SC	TX		UT			NE	MB	
			TN			WA			ND	SK	
			VA			WY			SD	AB	

Please enclose paper logs, photos, comments, ideas, etc., with your entry and mail promptly to:

### FISTS Sprint Logs

Dave Bamford, W2DAB  
444 East 75th Street 16F  
New York, NY 10021

I HAVE OBSERVED ALL FISTS SPRINT COMPETITION RULES AS WELL AS ALL REGULATIONS FOR AMATEUR RADIO IN MY COUNTRY. MY REPORT IS CORRECT AND TRUE TO THE BEST OF MY KNOWLEDGE. I AGREE TO BE BOUND BY THE DECISIONS OF THE FISTS AWARDS COMMITTEE.

Date \_\_\_\_\_ Signature \_\_\_\_\_ Call Sign \_\_\_\_\_

Comments:

## TO JOIN OR RENEW YOUR FISTS MEMBERSHIP

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If you live in North, South or Central America, you may join the Americas Chapter of FISTS. Membership is open to all people interested in Morse Code, irrespective of their ability.

FISTS numbers are not reassigned, so if you had a number in the past and renew your membership, you will retain the same membership number.

### **Please Note: Changes to Americas Chapter Membership Dues.**

1. A “one time” extension of two FREE years membership has been added to all expired memberships from Jan. 1, 2017 to Aug. 15, 2018, due to no *KeyNote* newsletters being produced during that time frame. This two-year extension started on Aug. 15, 2018.
2. All paid memberships as of Aug. 15, 2018 will receive a “one-time” FREE extension of two years membership.
3. Any previous members with lapsed dues (not included in item 1 or 2 above), who wish to renew their membership, will receive a one-time, two-year FREE extension of membership, with down-loaded newsletters.

4. If you wish to join FISTS as a “new Member,” you will receive a FREE one time, two-year complementary membership with down-loaded newsletters.
5. If you are 80 years old and over, you will receive a FREE “Life Time” membership.

Offers 1, 2, 3, and 4 above expire on Aug. 15, 2020.

To take advantage of these offers, send an e-mail with your call, name, address, and telephone number to: Dennis K6DF, FISTS Membership Manager at [membership@fistsna.org](mailto:membership@fistsna.org).

**DO NOT SEND ANY DUES PAYMENTS!**



# FISTS CW CLUB Membership Application/Renewal



For North, Central, and South America including all territories and islands.

Call Sign \_\_\_\_\_ NEW Member or Renewal, Enter FISTS # \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_

State \_\_\_\_\_ ZIP+4 \_\_\_\_\_ Phone \_\_\_\_\_

Rig (optional) \_\_\_\_\_

Other Club Affiliations (Optional—ARRL, RSGB, etc.) \_\_\_\_\_

A User Name and Password will be sent to the e-mail address you provide below to give you access to current On-Line Newsletters as well as Member Only Areas of the FISTS CW Club web site.

E-Mail \_\_\_\_\_

Regular Membership—**On-Line** Newsletters\*

Family Membership—Please provide the Name, Call, and FISTS # of the member.

Name \_\_\_\_\_ Call \_\_\_\_\_ FISTS # \_\_\_\_\_

Under Age 18-FREE Membership—Birthdate Required mm/yyyy \_\_\_\_\_

Over Age 80-FREE Membership—Birthdate Required mm/yyyy \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

Send application to:  
FISTS CW CLUB  
c/o Dennis Franklin, K6DF  
4658 Capitan Dr.  
Fremont, CA 94536 USA

\*E-Mail required  
01/01/2018

Americas Chapter, FISTS CW Club  
3000 Town Center, Suite 2370  
Southfield, MI 48075  
[www.fistsna.org](http://www.fistsna.org)

NON-PROFIT  
U.S. POSTAGE PAID  
PERMIT #229  
ANN ARBOR, MI 48103

You Can Find Your Renewal Date On the Following Web Page:

<http://www.fistsna.org/expdate.php>

**Send in your stories and photos for *The KeyNote!***

**[keynote@fistsna.org](mailto:keynote@fistsna.org)**

When you've worked a FISTS, you've worked a friend.

