Meriden Amateur Radio Club, Inc
P.O. Box 583
Meriden CT 06450
W1NRG

Edward L. Snyder, MD W1YSM
President

Motivating Amateur Radio Clubs to Open New Initiatives (MARCONI)

Program 3: CW TRAINING

Training Program Director: Bob WB1GYZ

Operational Guidelines

Statement of Program Purpose: International Morse Code, typically referred to in radio parlance as CW (continuous wave) hails from the earliest days of wireless telegraphy. The modern Morse Code and its transmission techniques bear little resemblance to the original version, that has undergone practical changes for efficiency through international agreement. Radio operators of the world now communicate by a universally recognized method. Mastering the Code is not easy. It is like learning a new language. But it continues a long tradition of wireless telegraphy that has earned a niche in a modern environment of computer-interfaced modes of communication. It has been said that CW can be relied upon for getting messages through when other transmission modes experience difficulty. At one time that was a true statement, but today, modern digital technology has relegated the Code to a bygone era. Yet, there remains a real camaraderie among radio operators who communicate by CW. They enjoy using Code for many varied and personal reasons.

Today, International Morse Code continues to play a role in wireless communications, not so much for day-to-day communications, but more as an enjoyable legacy mode of communication. There are still, however,

some hams who proudly admit to operating CW only. Learning and contesting via Morse Code can be a method for increasing camaraderie among radio Club members and that will increase activity and add to the enjoyment one receives from amateur radio and from being a member of an amateur radio Club. These Operational Guidelines will provide insight as to how a Club leader can organize, implement, and maintain a training program in CW to support a radio Club's CW activities for its members. Because CW is fun to learn and enjoyable to use, the fellowship derived from a group of individuals learning Morse Code together becomes obvious over time, as the Code classes continue. In some parts of the world, knowledge of Morse Code is considered a useful skill set. Today, however, the majority of Morse Code is used for contests, rag chews and CW nets.

Scope of a CW Training Program: Learning to send and receive Morse Code requires specialized equipment, such as, various kinds of hand-sending devices (straight keys, semi-automatic keys, cooties, automatic electronic paddles) oscillators, and headphones. The straight key has changed little since its inception. The semi-automatic bug soon followed and was an instant boon to early telegraphers, as repetitive sending often resulted in a condition called "glass arm." Today, glass arm is known as carpal tunnel syndrome. The Vibroplex bug was an ingenious mechanical marvel that considerably reduced hand and wrist motion. Eventually, that device was further improved by the fully automatic sending device called an electronic paddle keyer. The electronic keyer sends a machine-like generated code that some operators say lacks 'warmth and personal touch.' Typically, a student becomes proficient with a straight key and progresses to an electronic keyer, while a few intrepid operators venture to a semi-automatic key called a "bug." After becoming familiar with all three devices CW operators usually settle on a key of choice. Those who master the semi-automatic bug develop a pleasing CW cadence which is immediately recognizable to seasoned CW operators. Restored vintage models are especially prized in this regard. Indeed, regular members of a CW net can often be identified by their "fist," a characteristic of sending style as unique as one's handwritten signature. The 'cootie' is a simple hybrid key of dubious worth, more a novelty than of any usefulness. It can be best described as a straight key mounted on its side, where the operator sends code sideways rather than up and down.

Typical CW Training Class Scenario (Case Study): A classroom teaching session set up will of necessity require an oscillator to generate the Code's audio tones, headphones for each student to hear without interference from room echo or other extraneous noise. Ideally each student also should have a straight key and an oscillator for home practice. The Meriden Amateur Radio Club (MARC) code course is patterned after the U.S. Navy code course, with few exceptions. Students are introduced to the Code by first memorizing letters that have opposing sounds. For instance, the letters A and N are opposite, as are the letters T and E. Using just those four letters produces words, such as ANT, TAN, NAT, NATE, ATE, EAT, TEA and AN. In the very first lesson students actually learn to send and receive those words with a surprising degree of accuracy. In follow up lessons those simple words are sent much faster and again copied accurately. Students quickly realize their ability to learn and become eager to master additional letters. Class instruction and home practice are essential to learning Code. As with many aspects of learning, there is no substitute for repetition and diligent home practice between classes. It is up to the Code class leader to instill enthusiasm and excitement as the classes progress and words become harder to master.

Getting Started: Students have different motivations for learning Code. Years ago, it was necessary to pass a code speed test given by an FCC examiner before being admitted for the written examination. Today, Code is no longer a requirement to obtain a license. In times past, knowledge of CW was important to the military, but that skill has been eliminated by technological advancements using digital modes. So, what motivates one to learn Code today? Many Code operators tell of following in the footsteps of a relative or friend, while others are simply interested in learning about another aspect of the hobby. Whatever a students' motivation, a Club needs instructors ready, willing, and enthusiastically able to instruct interested students.

Equipment for Setting Up CW Training: The cost for setting up CW Training for a Club is fairly modest. Depending on class size the cost of equipment is typically:

Six quality straight keys	~$300
One semi-automatic bug	~$300
Six code practice oscillators for home use	~$180
Eight headphones	~$ 80
Three paddle keyers	~$210
12V Battery or power supply for oscillator	~$ 75

Total: Approximately $1,000 outfits a classroom CW Training program quite well. The price, of course, can be scaled down for smaller classes.

Conducting CW Training Sessions: As an example, MARC's first CW class met nightly at 1930 ET and was well attended. There is no fixed rule on the number of times to meet weekly. The instructor should make determination of best class schedule by asking members what works best for the majority. A practical schedule would meet every other evening with the expectation that students will practice between sessions. Having a co-instructor greatly facilitates teaching and reduces burden on the lead instructor. Also, having non-continuous lesson days provides an opportunity to discretely help struggling students between sessions. The biggest obstacle to overcome is keeping all students in the group at a "class level." That is, all members receiving and or sending similar numbers of letters at about the same speed. Extra help needs to be available and provided to students having difficulty in mastering the Code -- or frankly, they will simply quit. Having students translate street and highway signs and newspaper stories, etc., into Morse Code keeps up the student interest and hopefully makes learning the Code less boring.

CW Training Challenges: Perhaps the greatest challenge is motivating the student to continue when the going gets tough. The importance of daily practice cannot be overemphasized. Practice and faithful class attendance are key elements of success. Sporadic attendance, and in our experience, insufficient home

practice are the main causes for a student to fall behind and eventually drop out altogether. Instructors must keep in mind that students have important family and job obligations that take precedence over hobby time. Missed sessions are often caused by unavoidable obligations through no fault of the student. Allowance must be considered, and makeup time should be provided.

CW Training Costs: CW operation for a typical amateur radio station requires minimal investment in equipment. All transmitters accept a straight key and semi-automatic bug connection, and most modern transceivers have built-in electronics for fully automatic electronic keying. There is minimal expense incorporating CW to an existing ham radio station.

CW Training Rewards: The reward is one of achievement and satisfaction from having become proficient at CW. Understanding Morse Code opens new facets of the radio hobby, such as, taking part in sprints, contests, rag chews, and joining the many Clubs dedicated to competitive CW events… a never-ending expansion of new and challenging activities. Each month in QST in the Contest Corral Feature, there is a list of myriad CW contests. Encouraging students to participate in such amateur radio activities promotes retention of the student's interest in his/her newly learned language. It also promotes camaraderie among Club members and that will help Clubs grow.

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For more information: **Contact:** marconiprogram69@gmail.com

MARCONI PROGRAM

CW Training Program Director:	-- Bob WB1GYZ
MARCONI PI:	-- Ed W1YSM
Administrator:	-- MaryAnn

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