Becoming a ham-Xiii

Morse Code: The amazing way of radio communication

Doubt has been raised whether Morse Code (Also called CW: Continuous Wave) is still required to be taught to an aspiring ham radio operator? It was also complained many a time that learning of Morse Code is the major deterrent to introducing a novice into the wonderful world of ham radio communication. Some people but believe that Morse Code is a must to judge the sincerity of a person going to be a ham radio operator. In fact most of the early ham radio operators were Morse Code operators. The recently concluded World Radio Conference (WRC) had the decision of removing Morse Code as a mandatory element from the Amateur Radio Examinations. But again it has been left to the discretion of each country. US and Russia have decided to retain the 5 wpm (word per minute) Morse Code proficiency as mandatory to get a ham radio licence. In fact the US and Russian Army have recently reintroduced the Morse Code to their radio operators, because it is believed that when the high-tech sophisticated digital communication network might go hay-wire in event of a disaster or malfunctioning, the much simpler Morse Code would still work! Morse Code should not be considered as a deterrent but as an amazing way of communication. A ham talking to another without listening to her/his voice and still making affectionate friendship!

What exactly is Morse Code? Probably you have heard about people sending messages by smoke and fire signals or sending messages by thumping on a drum (called tom tom) in ancient times. In a similar way, a ham radio operator can send a message by pounding a small 'Key' (called the Telegraph Key or Morse Key). The radio wave if continuously (Continuous Wave) transmitted through an antenna would contain no information. But using a little ingenuity one can put information into it. In fact Morse Code is considered most primitive form of digital communication technique (apart from Morse Code, ham radio operators also employ many digital communication techniques for exchange of information from one computer to another computer hooked without any wire!). Incorporation of 'voice' (your audio) into a radio wave involves a little more complicated electronic circuitry. However, if information can still be incorporated albeit without human voice and with much simpler device, why not we do that? That was what Samuel F. B. Morse conceived and patented in the year 1837. He devised a machine, which can jot down combinations of 'dots' (.) and 'dashes' (-) on a moving paper roll. If you keep an electrical switch 'ON' for a short while, it produces a 'dot' on the paper and switching it 'ON' for a longer duration jots down a 'dash' on it. In fact a 'pencil' was attached to an electromagnet, which got activated when the switch is made 'ON' or 'OFF'.

At that time 'wireless' communication was not yet invented. After the advent of wireless radio communication it was found that the Morse Codes could be made aurally distinguishable. That is, it is much more easier for the radio operator to write down the alphabets/characters/ punctuations by simply listening to the corresponding combinations of the sounds of 'dots' and 'dashes'! These tones are produced by switching 'ON' or 'OFF' a Morse Key! Morse Code is called 'CW' in ham terminology.

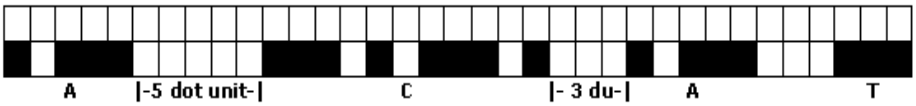

Fig 1:Graphical representation of the sentence: 'A CAT' in Morse Code

another. Similarly, gapes are maintained to distinguish one word from the other.

Remembering the Morse Codes is an art by itself. It involves a rhythmic response of the mind. The combinations of 'dot' (.) and dashes (-) should not be memorized as a group of printed symbols! Instead they should be memorized from their sound. For example, for the sake of practice, the letter 'A' can be pronounced as 'di dah' (. -). Similarly 'dah di di dit' (- . . .) is 'B'. A dot coming at the end of a combination is pronounced as 'dit'. As we said that precise gape is maintained between these combinations of 'dots' and 'dashes', the time taken to produce the sound equivalent of one 'di' or 'dit' is taken as unit time and called a 'dot unit'. A 'dah' is approximately of 'three dot units' length and the space between two sound elements of a letter is 'one dot unit', i.e. silence period is one dot unit. The space between two letters or characters is equal to 'three dot units'. The space between two words is equal to five dot units. At Fig 1. this is graphically represented taking the example of a sentence, say, 'A CAT'.

The International Morse Codes

A .-	K -.-	U ..-	0 -----	6 -....
B -...	L .-..	V ...-	1 .----	7 --...
C -.-.	M --	W .--	2 ..---	8 ---..
D -..	N -.	X -..-	3 ...--	9 ----.
E .	O ---	Y -.--	4 ....-	
F ..-.	P .--.	Z --..	5	
G --.	Q --.-	Full stop .-.-.- (AAA)		
H	R .-.	Comma --..-- (MIM)		
I ..	S ...	?..--..(IMI)		
J .---	T -			

Morse Code Speed

The minimum speed to qualify for a Grade II licence in India is 5 word per minute (5 WPM). 5 letters/characters constitute a word. A message containing 125 letters when sent in 5 minutes or when received in 5 minutes makes your speed 5 WPM.

Morse Codes are heard like short and long tones. A short tone is a 'dot' and a long tone is a 'dash'. Precise gapes are maintained between these combinations of tones so that each letter, character or punctuation can be distinguished from one

Those who have access to a computer (without multimedia) can download a free software called 'Cwtype' developed by a Russian ham radio operator (Sergei, UA9OSV). Those having computer with soundblaster card can use a freeware called 'CW_Player' (developed by Gabriel, F6DQM) downloadable from http://perso.club-internet.fr/f1orl/cwpeng.htm. Otherwise Morse Code learning cassettes brought out by Amateur Radio Society of India (ARSI) can be used to learn the Morse Codes.

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