

# MASTERING MORSE

(Steve Crabtree G3OXC, January 1986)

Certain sources these days submit that the passing of the Morse Test should not be obligatory before sallying forth on the amateur airways. Their point is that Morse is an unnecessary hurdle and will probably be forgotten the instant the newly licensed operator gets his hands on a microphone.

## Compulsive Ritual

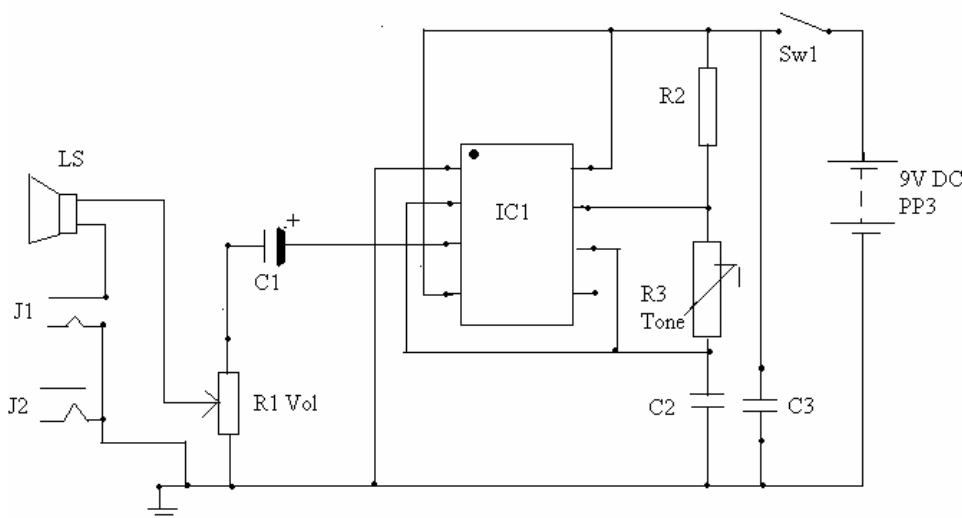
The other camp insists that it is part of the training experience, which is the reason for granting of the Licence in the first place. They exhort merits of Morse and quite possibly fail to see why the new generation of enthusiasts should be spared the ritual they had to undergo. I make no plea for either side. Each has a point.

My point is that as legislation stands it is necessary to pass the Morse test and I hope to suggest an approach that may make the task easier. The first requirement for tackling the Morse code is a Companion. To attempt to learn and master the code on your own, even with the necessary equipment is a formidable task. If you recruit at least one fellow enthusiast the job ahead takes on a new light. Apart from the competitive spirit you will move forward at a comparable rate, certainly in the early stages. Your combined aim will be to progress as quickly as possible and it is suggested that you draw up a schedule of meetings. These should be as close as your business and social commitments will allow.

Your initial impetus should be maintained as long as possible; certainly until you have half the code memorised. With a minimum of two persons, one will send for a few minutes and then take up the pencil to copy the other's efforts. After a few sessions you may feel like tuning through the amateur bands, and this again can be done in company. This does not mean you should not spend time listening on your own. All practice is useful but working alongside a similar minded colleague can make the whole operation more enjoyable.

## Equipment

The minimum requirement is of course for a key, buzzer and a battery. During the early days a buzzer will be adequate in helping you formulate the Morse Characters. However, serious minded students would do well to acquire or build an audio oscillator. This need not be expensive. One suitable circuit utilises a Signetics NE555 timer IC and is shown in the opening pages of some ARRL radio amateur handbooks. It incorporates a tone control, which enables the user to alter the pitch of a note if required. The components can be assembled on a small piece of Vero-board and mounted inside the speaker cabinet, which may be wood or metal.



- R1- 10k $\Omega$  log.
- R2- 2k $\Omega$
- R3- 100k $\Omega$  lin.
- C1- 25mF/ 25V electrolytic
- C2- 0.2mF
- C3- 0.1mF disc ceramic
- S1- mini single pole switch
- J1, J2- Phone Jacks for Key plugs
- LS- speaker- any impedance
- IC1- Signetics NE555 Timer IC

## **Parallel Key Sockets**

It could be worthwhile wiring in 2 key sockets in parallel as this will serve to accept 2 Morse Keys, which could be used to simulate operational working when you are at a more advanced stage of learning.

The Morse key need not necessarily be expensive. If you do wish to continue working in Morse once your ticket has been obtained you will inevitably move on to either a semi-automatic (bug) or a fully electronic complete with paddle. The hand key will probably work its way to the bottom of the junk box only to be rescued for the SKE (Straight Key Evening).

## **Getting started**

You've got the gear. You've got a friend. You're ready to go! On a piece of paper (of which you are going to need reams) write down the first 6 characters of the alphabet with the equivalent Morse symbols along side them. Six is sufficient at this stage because you need to give yourself a bit of confidence. Study them for a moment. When you look at the Morse symbol for A you should now start to look at it as 'di dah' and not dot dash.

You are going to recognise the sound or rhythm of the letter in the future and nothing else. A period of forming the Morse sounds of the letters that you read is a very useful way of consolidating the characters you have learnt the night before. Holding the key is the next process. The textbooks will tell you to hold the knob of the key with the thumb and 2 fingers and use a wrist movement to obtain the formation of the character. I do not dispute this, but I would suggest a less stringent approach. The key should be gripped in a way that is *most comfortable to you*. It really is too early to develop a stance at this stage. However, when you have learnt a few letters you will be able to decide which position that you feel most at home with.

There is no need to rigidly force yourself to grip the knob as the textbooks decree. I have known first class operators to produce beautiful Morse with just two fingers resting on the top of the knob. The adjustment of the key will contribute to the way you hold it. Initially it can be useful to have a relatively wide gap between the contacts and this will usually be associated with a fairly high pressure on the spring keeping the contacts apart.

When you have spent a few sessions in practice and feel more familiar you will probably consider reducing the gap and the pressure. The choice is yours. Do not persist with an uncomfortable adjustment. It should be possible to set up even the cheapest Morse key to meet your individual requirements.

## **'Di dah'**

With the circuit switched on, key the first letter 'A' di dah. The key should be pressed momentarily for the dot and then again longer for the dash. In theory the dash should be three times as long as the dot. Do not rush the characters leaving long spaces between them. Key them slowly. At this stage you are concentrating on forming the characters and not speed. Always ensure that your dashes are long enough- to skimp on the length of a dash in order to increase your speed at whatever stage you have reached is futile. Your dashes must be sufficiently long so that there is no chance of them being confused with a dot.

This may sound obvious but it is surprising how many operators sacrifice formation for speed. One character to be aware of is 'C': it is far better for the first dash to be even longer than normal than to risk the chance of it being mistakenly copied as 'F'. At the back of your mind must remain the fact that you will eventually be keying a message to someone who is actually copying it!

Familiarise yourself with the first 6 characters and then hand them over to your companion and copy his rendering. When you feel more confident you can make the process more interesting by forming words: CAB, ACE, BAD, FAB, FACE, DEAF, BEEF, FEED, BADE, FADE, CAFÉ. If you can master the above in the first session of study you are on your way.

### **Take more on board**

You are now ready to increase your vocabulary. Write down: G, H, I, J, K, L and also T with the Morse equivalent. The introduction of 'T' will enable you to recognise 'THE' and the third vowel will provide the facility of being able to send short sentences. However, until you're able to recognise the character fairly quickly you should concentrate on random arrangements preferably in 5 letter groups.

You will soon be able to realise the advantage of a companion to share your commitment. When you start to measure your attempts in the form of words per minute (5 characters count as one word) you will find that, inevitably, you will always be able to send faster than you can receive. This will continue right up into the upper 20s when you suddenly find that you can copy anything that is correctly sent but your sending will be restricted to your natural limit.

This works well in company because assuming that 2 people have reasonably similar standards of progression, one will send just a little faster than the other one can receive. This is good as it is in attempting to copy Morse at a higher speed that will enable you to progress at all.

### **Capital**

You should start by recording the characters in capital letters- even the plain language. Occasionally, when you cannot recall a character you will be tempted to write down the dot dash equivalent of what you think you heard. This habit will disappear by itself once you have memorised a few letters. If you find that you cannot remember a character train yourself to ignore it and pass onto the next character coming up. Although you are thinking in seconds you must develop the art of knowing when you have missed a letter and not waste too long on it to the detriment of the copy that is continuing.

At this stage of the proceedings you should not attempt even to look at an electronic key, let alone handle it. If you have been optimistic enough to have bought one for the future, keep it out of the way. You cannot use this in the official Morse test and in any case you must have thoroughly established background on a hand key before you can even hope to feel your way around an electronic one- even at slow speeds. Like many other trades and professions you must serve your apprenticeship.

When the first 13 letters have been memorised, the characters M N O P Q R S and finally U V W X Y Z, should be introduced in two separate sequences. The previous characters should be continually interspersed with these newer ones to ensure that you keep up your overall knowledge. You will not be at a very vulnerable stage of the learning process. Your enthusiasm may have waned and the difficulty of mastering the final letters of the alphabet may possibly appear too much to handle.

Now is the time to spend more time on the Amateur Bands, both in a group and on your own. Call signs should be the target. Call signs can of course consist of any alpha and numerical character and this is what you need- a constant barrage of random signals. Tune into any station calling CQ, wait for the 'de' and then copy the signal. This will be sent at least three times. Your aim is to copy it before the transmission ends.

### **Morse by numbers**

At this time you should have by your side the numerals 1 to 0 with the Morse symbols alongside. Refer to this often and you will soon find yourself recognising the figures fairly quickly. To consolidate your retention of numerals spend a session on the key sending random numbers in 5 figure groups and ending up with some of the call signs you have previously written down.

With a little sustained effort during this difficult period you can master once and for all the complete alphabet and numbers 1 to 0. Up until now you have been concentrating on forming and memorising the characters. Now is the time for checking up on speed. Have some timepiece that indicates the time in seconds conveniently at hand. Select a piece of plain language and taking care with the formation of the characters send for one minute. After the minute is up, your calculations using 5 letters to a word and ignoring spaces.

With any luck your speed should be approaching 8 words per minute. If it isn't, it indicates that you are taking too long to think up the formation of certain letters and you should concentrate on this until they are clear in your mind. Continue with the sending, gradually quickening the rate but not at the expense of correct formation.

### **Confident?**

Once you are rally confident in the sending of all the Morse characters you are ready to build up your receiving speed. You may have purchased records or cassettes with set programmes designed to help you with this. However, remember that also the HF bands contain a wealth of original Morse signals all available and waiting to be extracted via your radio! The lower section of the amateur bands are confined to CW use and Morse signals of varying speeds will be heard on at least two bands at some time of the day or night.

The USA novice section of the 15m band stretches from 21.100MHz to 21.200MHz and many other countries also use this section for novice transmissions. Slow Morse transmissions are regularly sent by UK hams at scheduled times throughout the day and evening. Using the CW section of the 2m, 80m and 160m bands, virtually the whole of the UK is covered by these volunteer operators in various locations. Details and actual frequencies are published in *Radcom*.

### **Polishing up**

To really polish up on your receiving capabilities, government press transmissions are thoroughly recommended. One of the easiest to locate is RVW Tass Radio in the USSR. Transmissions can be heard at considerable strength on various frequencies at different times. Automatic Morse at speeds in excess of 20WPM sends items such as News and comment in plain language. If you can settle yourself down with plenty of paper on hand, copying the output of these transmissions can be excellent training. By checking over the copy later you will be able to assess your progress. An obviously wrong letter in an otherwise intelligible sentence will indicate any letters that you have failed to master.

Now comes a rule that, on the surface is obvious, but in practice is often difficult to follow. Never guess. Never assume you know that you know the characters coming up when you think you have reached the middle of a word. This needs strict discipline at the outset but ignoring it can be fatal. One way of avoiding this temptation is to 'read behind'. Many experienced operators write down their copy a few characters and often, whole words in arrears. At first this seems risky. If you know the character why not put it down instantly? In practice it will serve you well and assist you when copying signals affected by interference.

Once you attain the sough after speed of 12WPM you must still continue. To take the test at this stage is taking too great a chance. You will probably be nervous and there will be no margin for errors. You should therefore press on and aim for 14-15WPM. If you can effectively receive and send at this speed, you will enter the examination with more confidence, knowing you can drop your sending slightly from this rate in order to concentrate more on your character formation.

### **Never forgotten**

The aim of this article has been to suggest a realistic approach to learning Morse. Once learnt and used only occasionally it will never be forgotten. To e an operator in the true sense of the word takes a little longer as you will undoubtedly realise when you finally get on the bands. Apart from the Q codes there are other abbreviations and signals that substantially reduce the time taken to convey information. Even the way a closing 'di di' is sent can infer a certain mood! There is no doubt that CW operators do get a certain satisfaction in practising their art. Why not take the plunge and join the 'Chosen Few'?

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