

The secrets of Easy Morse Code Sending!

So what are the secrets of Easy Morse Code Sending?

To answer this question, we first have to ask a lot of questions to find out what works for everyone.

Are all Keys (paddle types) created equal?

Which paddle should I use, Single or Dual Lever Action?

What are the pros and cons of each type of paddle (Single or Dual lever)?

What are the adjustments in a Single or Dual Lever Paddle?

When using a Dual lever paddle, why do I hit the paddles when I don't want to?

Why does my hand feel uncomfortable?

Which fingers do I use to operate the paddles?

Is there a correct hand position to the paddle?

Why do some paddles feel better than others?

Which contact is better, Silver or Gold?

Which type of tension is better, Springs or Magnets?

How do you adjust a Dual lever paddle for contact spacing?

How do you adjust a Dual lever paddle for paddle tension?

How do you adjust a Dual lever paddle for paddle spacing?

What is meant by Mode "A" and "B", and which one should I use?

Should I use an external keyer or the internal Keyer in my radio?

Okay, what about this lambic thing, what do I gain, if anything with lambic sending?

So, let's start by answering the questions in order, and I will add my comments to each question. Hopefully all concerns will be covered and you will see the use of paddles in a different light. However before I start, please understand this is written to Amateurs Radio Operators with some knowledge of Morse code and terminology. I also need to say that these are the things I have learned in my 50+ years as an Amateur Radio Operator and we will only discuss the Paddle type of Keys used in Amateur Radio operations. Okay here we go.

Are all Keys (paddle types) created equal?

I am sure that each manufacture of paddle types has their own diversity that they bring to their products that keeps them in the business.

All manufactures of paddles incorporate adjustments in tension and contact spacing. However, not all manufactures incorporate adjustments in paddle spacing. This you will have to ask the individual manufacture for yourself. The ones that I am aware of that are adjustable after purchase are the Bencher, Kent, Vibroplex Brass Racer, and Begali (and some Begali's are not adjustable), and there may be others I am not aware of. There are other manufactures who ask up front for your spacing requirement between paddles so they will make it with that spacing, and it is not changeable. **I recommend a paddle within you price range which incorporates all the adjustments for your type of operation.**

Which paddle should I use, Single or Dual Lever Action?

This is difficult to answer; it is only answered with your personnel preference, and what you feel comfortable with. For example, if you have used a bug in the past and are comfortable with the hand movement, and want to switch to a Paddle type of key; maybe going to a single lever action is the answer. You will continue to move your hand back and forth in the same bug motion and would transition easily to the Single lever Action Paddle (SLAP).

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However, if you are new to sending Morse code, I **recommend a Dual Lever Action Paddle** for the following reasons.

- 1 – The motion required to make a character is less (just the finger and thumb, not the whole hand).
- 2 – There is future functionality to learn that will make sending characters even easier (Iambic).
- 3 – There are lots of manufactures to choose from.
- 4 – The sending position is more relaxed.
- 5 – Effort required to squeeze the paddle is easier.
- 6 – Contact spacing can be made very close with the purchase of a quality paddle.

Personally I don't know anyone, but I would imagine there are some people that can switch back and forth from a Single Lever Action Paddle to a Dual Lever Action Paddle with equal ease. But it's mostly one type or the other.

See http://www.qsl.net/va3rj/cw_key.html for different manufactures and key types. After reviewing the different types of paddles, you should now be aware that there maybe two Paddles used in a Single Lever Action Paddle. So from now on I will only refer to the paddles as Single or Dual Lever, with Dual Lever having a separate contact for the Dits and a separate contact for the Dahs (which in some cases is referred to as a Squeeze Paddle).

What are the pros and cons of each type of paddle (Single or Dual lever)?

Single Lever Pros:

- 1 – Fewer adjustments in the paddle then the dual paddle.
- 2 – Same motion as sending with a Bug.
- 3 – Lots of Manufactures to choose from.
- 4 – Easier to learn over a Dual Paddle.

Single Lever Cons:

- 1 – Lots of hand movement (may become tiring).
- 2 – A heavier base may be required to stop it from moving on the table top while sending or you will have to hold the base while sending, or come up with a method to mount it in one position only on the table so it doesn't move.

Dual Lever Pros:

- 1 – Less hand movement, only need to move you index finger and thumb.
- 2 - Relaxed hand position.
- 3 – Lots of manufactures to choose from.
- 4 – Easier sending with Iambic process.
- 5 – Easier to send when the paddle is adjusted properly to your hand.
- 6 – Smoother sending over single lever paddle.

Dual Lever Cons:

- 1 – More adjustments in the paddle for personal setup.
- 2 – Learning to use your index finger and thumb vs. rolling you hand back and forth.
- 3 – More to learn, Iambic and Mode "B" sending.
- 4 – Adjusting the paddle may take some time to find the right sweet spot.

There are different views in the relationship of Single vs. Dual Lever Action Paddles, and Iambic vs. non-Iambic sending. You can research this yourself to help make the final decision.

After all, this is really up to you, and what you want to accomplish. It's just smart, to gather as much information as possible to make the right decision.

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What are the adjustments in a Single or Dual Lever Paddle?

Single Lever Adjustments:

In a Single Lever Paddle, all that needs to be adjusted is the paddle tension (the amount of resistance you get when you push the paddles), and the contact spacing (the distance between contacts). Each is pretty straight forward and easy to do. You will have to find what feels good to you.

Dual Lever Adjustments:

In the Dual Lever paddle there is one more adjustment. First, the same two adjustments as in the Single Lever paddle (Tension and Contact Spacing). Second, is the paddle spacing to fit the relaxed position of your finger and thumb? Fitting the spacing of the paddles to your finger and thumb might take a few tries before you find your sweet spot.

The position of the paddle to your hand is also important, and it should be on an angle to your hand (see detail later). When you lay your hand down on a flat surface and let your hand roll over, it should come to a point where the end of the index finger and thumb are equal (see Photo "A"), and they're about an inch above the flat surface (see Photo "B"). To some this is uncomfortable because their hand is lying on its side (More on this latter).

Photo "A"



Photo "B"



When using a Dual lever paddle, why do I hit the paddles when I don't want to?

This situation occurs when the spacing between the paddles is not set to the finger and thumbs resting position. What happens is the finger and thumb are moving to their rest position and the paddle spacing is too wide. To resolve this situation, set the hand, finger, and thumb in their relaxed resting position, adjust the spacing of the paddles so there is about 1/16th to 1/8th of an inch between the outside edge of the paddles and the index finger and thumb. Like I mentioned earlier, this may take some time to find the sweet spot.

When sending, it is best that your finger and thumb return to their natural resting position. This reduces extra movement of the finger and thumb. Plus the finger and thumb are relaxed and not under tension.

Why does my hand feel uncomfortable?

Manufacturers do not account for hand size. Some people with large or small hands find it difficult to have their hand in a position to activate the paddles comfortably, and it becomes a struggle to send.

If your hand feels uncomfortable (Cramped), I recommend raising the Paddle (see photo). If this still doesn't feel any better, increase the height even more, until you find that comfort position for your hand. Oh, don't forget to put rubber feet on the bottom of the extension, or it will be



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sliding all over the table top. In some cases (for the right handed person) it is recommended to squeeze or tap the top of the Dit paddle with the tip of the thumb and the bottom of the Dah paddle with the tip of the finger. Changing the relationship of the finger and thumb may help in finding that comfortable position. For the lefties, just the opposite, thumb on top of the Dah paddle and the finger at the bottom of the Dit paddle.

Which fingers do I use to operate the paddles?

I recommend learning how to use the tip of the **index finger and thumb** on either hand to send with.

I am left handed and initially learned how to send with my left hand, and did not switch the paddle function. The Dits and Dahs are still setup for a right handed person. I have no problem sending with either hand today, but that's another story.

Is there a correct hand position to the paddle?

YES! To acquire the same movement between the index finger and thumb, the paddle should be between a 30 to 45 degree angle from your hand, forming a "C" as viewed from the top for a lefty, and a backwards "C" for the Righty. With the paddle in this position the index finger and thumb are parallel and wind up being the same distance from the paddles (that is if the paddle is adjusted properly in your hands relaxed resting position), see Photo "C". I recommend this to all new CW Ops. Experienced Ops may find this uncomfortable, and it will take a while to change the habits if they decide to switch over. There is more flexibility using the tip of the finger and thumb, which will pay off, if the goal is to send at 40 to 60 plus WPM.

In Photo "D" the Paddle is in line with the Arm, creating the wrong position which will cause stress on the Wrist. The Finger and Thumb are also in the wrong position for equal uniform paddle activation. This position will cause the arm to tire when used for long periods of time. It will also cause the Finger and thumb to move at the knuckle joint rather than the first joint of the Finger and Thumb. This method will cause stiff Finger and Thumb movement, which will limit the sending speed. Photo "D" is **NOT** recommended. Because of the misalignment of the finger and thumb in Photo "D" some operators compromise by bending their index finger underneath at the second knuckle and flatten their hand and use their knuckle to send with (See Photo "E"). This is called the knuckle Sender; again it will limit the sending speed and is **NOT** recommended.

Photo "C" Recommended 😊

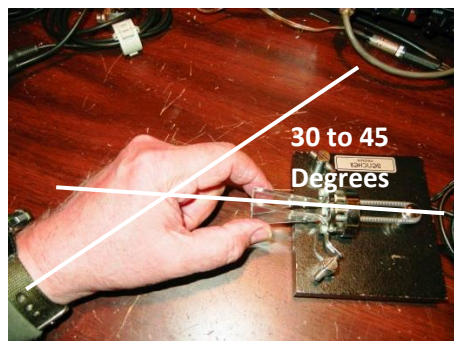


Photo "D" **NOT Recommended!** 😞

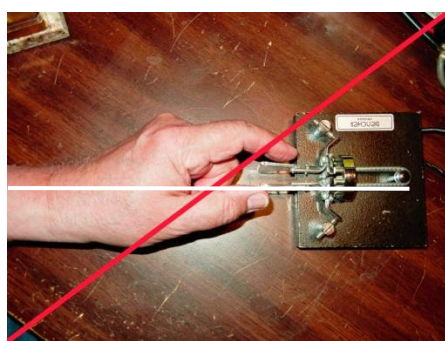
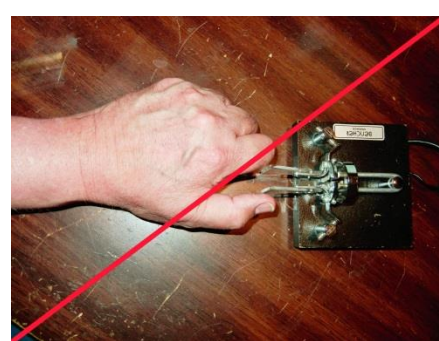


Photo "E" **NOT Recommended!** 😞



Why do some paddles feel better than others?

This is a great question, and I have also found this to be true. It is because some paddles are closer to the correct hand/paddle position, and their design functions maybe smoother (Quality).

Which contact is better, Silver or Gold?

I do have a **preference to Gold**. I found that I wind up cleaning the Silver contacts more than the Gold contacts.

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Oh, and it pays to keep the key covered. There is always dust in the air and where ever there are electrical contacts; dust particles are always attracted to them no matter what the potential.

Which type of tension is better, Springs or Magnets?

As tension is very important in the setup of the paddle for comfort, I believe responsiveness at the speed you want to operate is the most important. This is only my opinion, ☺ but I found that **Magnets have a better response** in managing the movement of the paddle levers when used at higher speeds.

The paddle with the micro threads in the adjustment screws are the best for finding those sweet spots.

How do you adjust a Dual lever paddle for contact spacing?

This I have found depends on your preference and your hand motion.

If you are heavy handed (and no disrespect intended), you might want to use a piece of 20 pound white paper to set the spacing between lever contact and base contact. It winds up being about .003 inches, and may feel large to some people, but if you have a lot of movement it's a good starting point. Use the paper as a feeler gauge, so the paper slides between the two contacts with light tension. After time, pushing hard on the paddles may change the distance between the paddles based on the manufactures material used to hold the paddles. So be careful when shopping for a key or work at becoming a light touch operator.

If the .003 inches feels like it's too much, try adjusting the key contact to the lever contact until they touch, and you hear a series of dits or dahs, and then back off on the adjustment until the sound stops. The final distance will vary between paddles depending on the type of thread used on these adjustment screws. See the Bencher and Kent adjustment below.

How do you adjust a Dual lever paddle for paddle tension?

This function is based on each manufacture and you will have to refer to their instructions to determine the adjustment method. Once you find this, the final adjustment is based on your feel. Again, if you are heavy handed, you might want to add more push back to your finger and thumb. If you are a light tough Op, then add less, but not so little that if you blow on the paddle it makes contact. See the **Tension Adjustments** below.

How do you adjust a Dual lever paddle for paddle spacing?

This is the toughest adjustment to make. It requires the most trial and error to find the sweet spot. But when you do, WOW! You will be set for any speed, fun time sending, and without many mistakes. Words will seem to roll off your finger and thumb. **You want somewhere between 1/16th to 1/8th inch between the finger and paddle.**

Bencher: See figure 1 & 3 below.

If you look at the paddle from the direction of the spring post, there are two set screws on the vertical round support that will change the paddle spacing. First back off on the contacts to where you have a large gap between them. There are also two screws at the bottom of the Lever support that may need to be loosened (see notes on Bencher Paddle Adjustments). Then adjust the set screw on each side evenly to make the paddle adjustment wider or smaller. Reset the paddle contact spacing as mention above, and try the different feel. Like I mentioned, this one might take some extra effort to find the sweet spot.

Kent:

There are two small set screws towards the front of the block which holds the levers. Loosing these two set screws will allow for the paddle distance to be adjusted (see the notes on the Kent Paddle Adjustments below).

The secrets of Easy Morse Code Sending! Bencher Paddle Adjustments

Figure 1:

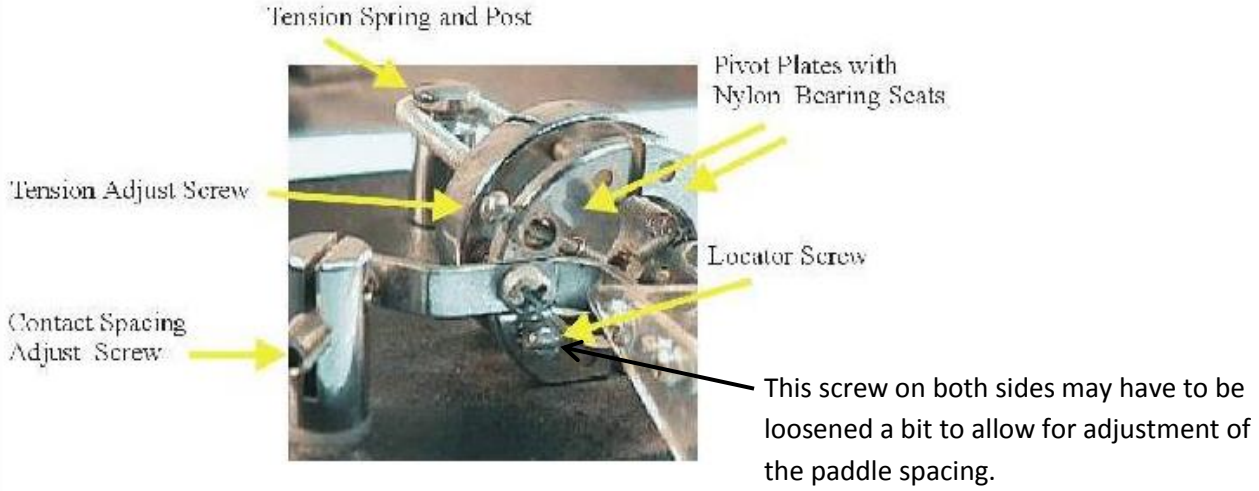


Figure 2:

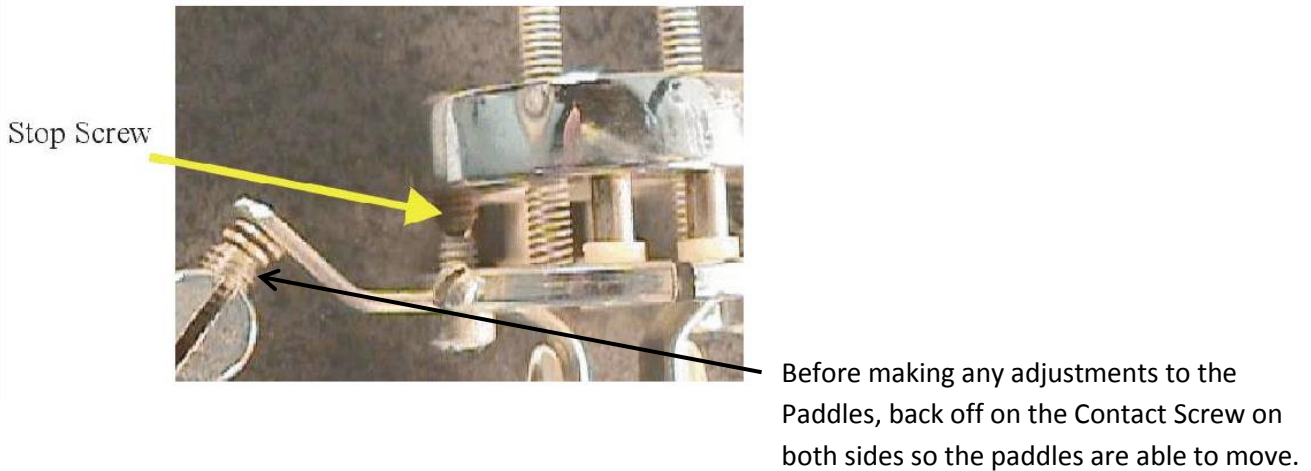
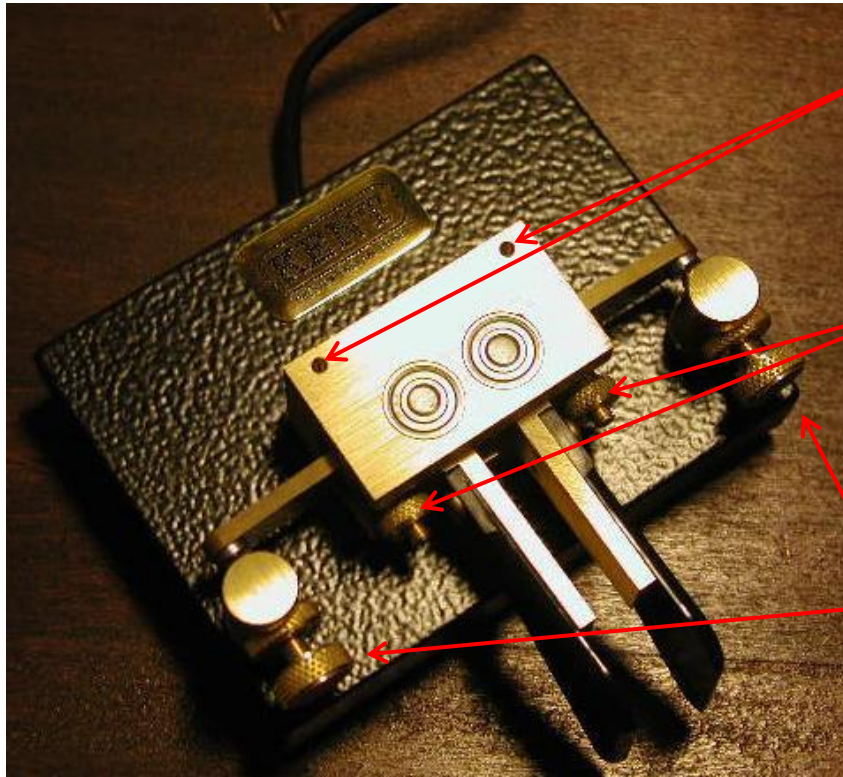


Figure 3:



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Kent Paddle Adjustments



These two .050 or 1/16th Alan Screws allow the paddles to be moved closer together or farther apart.

These two nuts are used for paddle tension

Back off on these **Contact** thumb screws so the paddles can move closer together or farther apart.

Do the following adjustments with the paddle connected to the keyer and have the keyer on!

After the Paddles are adjusted to your finger and thumb spacing, adjust the contact thumb screws to a space where you are comfortable with the travel before the paddles make contact with the contact thumb screws. This should be about .003 of an inch. A piece of 20 Lb. white printer paper may be used as a shim to set this spacing. Then tighten the lock nuts on the Contact thumb screws, and see if that feels better.

If the spacing feels like it is too much, then loosen the locking nuts on the Dit side of the paddle Contact thumb screw, and turn the Contact thumb screw in until you hear Dits. Then back off the Contact thumb screw until it stops sending Dits. Then tighten the lock nut. Do the same thing for the Dah side of the paddle. Try this and see how it feels. Then reset the Tension.

You will have to experiment with these adjustments until it feels the best for you.

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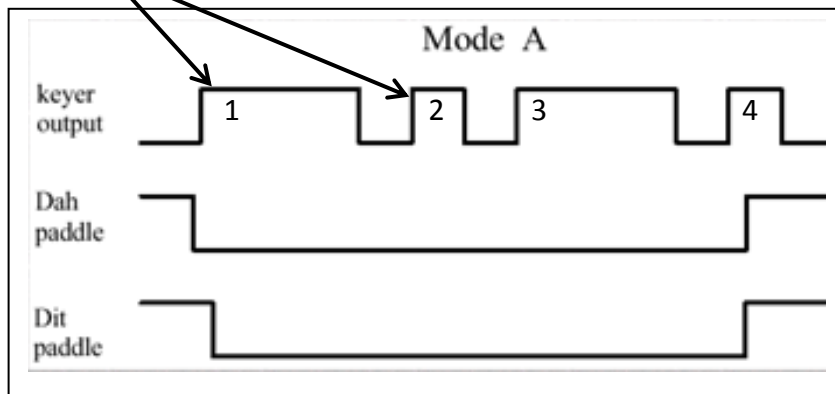
What is meant by Mode “A” and “B”, and which one should I use?

The difference between mode “A” and Mode “B” lies in what the keyer does when both paddles are released.

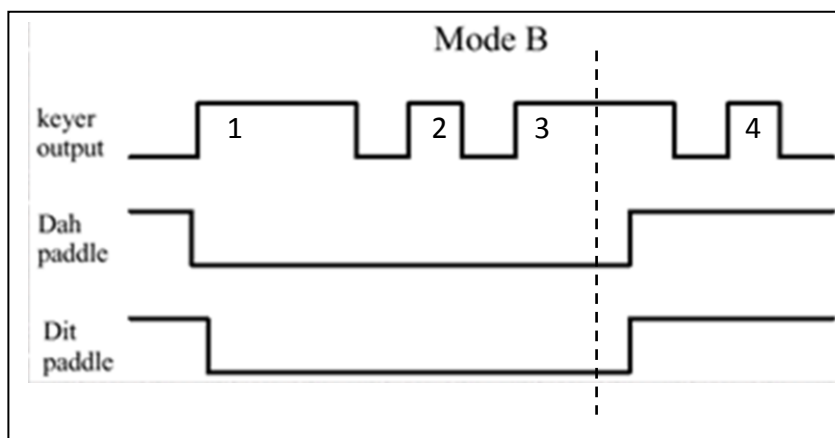
Example for Letter “C”:

In **Mode “A”**, the paddles are released during the last element and sending stops.

Character Elements



In **Mode “B”**, the keyer sends an additional element opposite to the one being sent when the paddles are released. Note the keyer output is the same, but the paddles are released much sooner. For the last element to be automatically sent to complete the letter “C”, both paddles need to be released during the **last half of the third element**. If the paddles are released any time during the last half of the second element or the first half of the third element, the letter “K” will be sent.



Which one should I use?

Again this is your preference. However, I **recommend Mode “B”**. I find it easier to send once you learn the process. But like anything which is not natural, it does take a little time and effort to learn. I believe you will wind up sending smoother and faster once you do (Just my opinion). Check it out for yourself, but don't give up to fast on Mode “B”.

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Should I use an external keyer or the internal Keyer in my radio?

It depends on your need. Radio Manufacturers today include electronic Keyer's with Mode "A" and "B" as a part of their product, and some manufactures also include memory functions.

However, Amateur Radio software engineers that understand Morse code and all the relationships required to send proper Morse code at any speed and requirement, have found a market for producing an external Morse code Keyer that allows operators multiple functions to cover standard operations, contesting, lots of memory, high speed communications and much more functionality than supplied in the radio.

So if you're operating in a contest and are not using a computer, and would like to try using multiple memories with the capability to vary the speed and keep track of the contacts automatically, **then an external keyer will be handy.**

There are a lot of Keyer manufactures in the market that cover every type of operation that maybe required. The costs are reasonable, and if you like to build, you can also save money by buying their kit and rolling your own version.

Okay, what about this lambic thing, what do I gain, if anything with lambic sending?

This topic has certainly been controversial and sometimes heatedly discussed if I may say it politely. ☺ Some people have gone to the extremes to explain that lambic sending does not save anything, and that it's only used on seven characters and using it becomes a problem at high speeds. There are many different articles out there that may be reviewed to gather different points of view. This, you will have to determine for yourself.

Because this subject has been written about so much, I'll share with you what I can remember about the Pros and Cons, and what I understand about using lambic sending.

Cons: (Items I recall others have said about lambic sending)

- 1 – It creates problems at high CW speeds.
- 2 – It doesn't save any time in sending.
- 3 – There nothing gained by learning lambic sending.
- 4 – lambic sending takes a long time to learn and the initial method of sending gets messed up.
- 5 – Learning lambic sending is frustrating to learn.

I am sure I have not covered all the Cons to this topic and if you have done your research, you will be able to add some other items that people have written about.

Pros: (Items I can recall from others and my experience)

- 1 – Smoother sending when using lambic sending.
- 2 – Less hand, finger, thumb movement when sending lambic.
- 3 – Relaxed when sending lambic.
- 4 – The operator does not have to create all the perfect timing of each character when using lambic sending.
- 5 – Easier and faster to learn from the beginning when a person is first learning the code.

I have to agree with the comments in number 4 and 5 in the Cons list. It is frustrating, and does take time to learn if you're already proficient at sending CW without the use of the lambic method. However, if the person has an open mind and doesn't let a little frustration get them down, and is willing to work hard; after about two or three weeks they will find themselves at a higher sending speed with less mistakes and they won't admit it, but they will wind up enjoying CW even more.

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Then they start to learn how to think and send words instead of letters. Then their speed really increases and it takes less concentration to send. The words just seem to flow from the thoughts right to the finger and thumb and words are being send without thinking of each character.

Learning the lambic method is easier to learn at the same time a person is learning Morse code for the first time. I recommend this for all new comers. At the time a person is learning how to manipulate the paddle and grasping all the mechanics of the paddles, doing the lambic characters will just become another part of the learning experience. However, there is also a learning curve in doing this too. The person has to keep an open mind and not let a little frustration get them down. It just takes practice. 😊

I had to learn the lambic method of sending after I learned two other methods of sending, and I am glad I did. Yes, it did take some time to get it, but WOW, what a difference! I love sending Morse code, and I do it better then copying in my head. 😊 I started sending Morse code by using a straight key. There were no Keyer's when I started, then graduated to a Bug, than I built a homemade tube type keyer from the ARRL Handbook. I made the Keyer because I could not send properly using the Bug and getting the correct 3 to 1 ratio. I created what is called a swing to my sending (not good). To some it is cool, but not really! They create uneven sending of characters, words, and sentences and it becomes hard to copy. But the Bug still looks great sitting on top of my radios and a good place for it. 😊 At the time, I converted my Bug to make the contacts for Dits and Dahs, and there was no function of the keyer other than push the Dit paddle for Dits and Dah paddle for Dahs. The same motion as using a Bug was used, but the Dahs were sent automatically. Then I got a Bencher paddle and still no squeeze action. The Keyer's at that time did not alternate between Dits and Dahs. Then I learned the Dit override method with a different keyer where the Dah paddle could be held down and tapping the dit paddle would insert Dits, and I learned the characters that could be sent that way to make sending easier. Then years later I made a keyer from a QST article which had the Squeeze (or lambic) function, and when both paddles were closed the Dits and Dahs would alternate. This was the point where I learned lambic sending and it has been a great journey ever since.

From all the discussions and Pros and Cons about lambic sending it certainly points to there is no gain in using the lambic method of sending. However, for me there are two thing that overrides all the Cons; and they are the most important thing I can say about lambic sending. **lambic sending creates smoothness and relaxation in sending!** The amount of hand movement is greatly reduced and all that moves is the index finger and thumb, and if you learn how to move the tip of the finger and thumb at the first joint it will be even less movement. I also believe that if you find the sweet spot for your hand, index finger and thumb, that the number of mistakes will also be reduced.

There are seven letters (**C, Y, Q, K, R, F, L**), four Prosigns (**AR, SK, AS, KN**), and the Period (.) that maybe sent using the lambic method. It is a small amount of characters; however, they do make sending easier and smoother and have a great impact in the sending efficiency.

However, I will leave the final decision up to you once you learn how to utilize the lambic method, using Mode "B", and all the "Secrets of Easy Morse Code Sending".

So what's left?

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The Summary:

From the information covered, the highlights to the “Secrets of Easy Morse Code Sending” are:

- 1 – A paddle with as many adjustments as possible for your style of sending.
- 2 – Gold contacts.
- 3 – Finding the relaxed resting hand position.
- 4 – Adjusting the paddle spacing to fit the relaxed finger and thumb resting position.
- 5 – Proper paddle to hand angle.
- 6 – Comfortable Hand to Paddle height position.
- 7 – Magnetic tension adjustments.
- 8 – A keying device that will give you the best results for your type of operation.
- 9 – Iambic sending using Mode “B”.

It takes knowledge to select the right tools, proper adjustments of the tools for best results, and understanding how to maintain the tools for ease of operation.

If you are serious about quality Morse code sending, I recommend that you take this information and study the details for yourself to find the “Secrets of Easy Morse Code Sending”!

These items and more are covered in the **CW Operations Code Course (CWOCC)** taught in central Texas.

I wish you great enjoyment in your journey for that ultimate sending configuration, and along the way that you find something to share with the rest of us that will help us to do a better job with our sending skills.

Thank you for allowing me to share with you what I have learned about this great mode of Amateur Radio operations.

73's,
Bill, K5LN