

51 wpm Boston 1920

55 wpm New York 1921

56 wpm Chicago 1922

69 wpm Brockton 1935

Last minute addition: Latest official record 75.1 words per minute Asheville July 2nd no errors, 4 minutes 24 dots to the word

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THIS SHEET EFFECTIVE AUGUST, 1939 UNTIL REVISED

My friends:

I do not intend that this shall be a piece of advertising. I am going to try to tell you as many of the things as I can call to mind that I think might help a man to become a better operator. I shall, of course, illustrate suggestions

by photographs of myself using my own keys. The same suggestions would apply to any others. It is only fair to mention that nearly all manufacturers of keys and/or speed keys, are trying to make good products. I believe there is business for us all.

ADJUSTMENT "SPEED KEYS"

First of all, they really should be called "EASE KEYS"—because instead of being used for speed, they're actually at their best when used to make easy and simple, good sending by any operator. Frankly—neither myself nor any other old time operator would use a straight hand key at any time we could secure a semi-automatic. This, despite the fact that I've worked hard and designed what I believe to be the best hand key available.

The main lever should be so balanced that there is a minimum of up and down play but that it'll swing freely sideways.

The vibrating rod should come to rest

firmly against the roll vibration dampener. This loose roll is necessary to eliminate stutters. The main lever stop screw should be adjusted so there is about 1/32" throw between it and the lever. It's pretty hard for me to name this measurement correctly as I do it by "feel", but usually there'll be an operator around of experience when a new man is attempting this adjustment. For that matter nearly all manufacturers probably adjust the key correctly before shipping. The dash lever should have about as much throw as an ordinary straight key. Perhaps 1/64" or thereabouts.

SPEED OF DOTS

The dots should be made at about the speed of good fast hand sending. On my government contract I made the Mac Keys to work perfectly at 15 dots per second. It will be clearly seen, of course, that moving the weights in or out on the vibrating rod regulates the speed. *It is extremely important*

that for good sending the dots be made never faster than about 20 dots per second. For that matter, a good guide is this: never make the dots faster than you can control them in making such characters as S, H, and the figure 5.

MAKE A DOT NOT AN "FFT"

Telegraph operators usually adjust the "bug" (apologies to Bill Albright) so that it'll make perhaps anywhere from 15 to 25 or more dots before stopping. This is ideal for telegraph circuits but very poor for radio. To give a good signal on an oscillator, I adjust

the dots so that the rod comes to a stop after 8 or 10 dots. This makes it extremely heavy and gives you a real dot. The spring on the dot main lever should be very light so that there needs only a slight slap of the thumb to make dots.

MAKING DASHES

As I show in the illustration, you do all the work on the muscles of your forearm. No part of the wrist or heel of the hand should touch the desk. And when you make dashes you do it with the full free swing of your whole hand, flexing the index and large finger slightly. Exactly as though you were sending with a straight key, excepting that instead of your thumb resting on the button as it does with a straight key, your thumb is just OFF

the dot paddle and your two fingers resting on the dash button.

I have found in training for sending tournaments that the finest way of developing speed is to send off and on for several weeks prior to the tournament, with the dash lever only, as though it were a straight key. Try it and you'll be surprised at how rapidly you can make characters.

MOST IMPORTANT OF ALL

Although I have already mentioned it, I do it again: the most important angle in correct sending is to have your elbow off the edge of the table. Resting your arm on the muscles

of the forearm. Keep your wrist and hand wholly off the table. Call back to your mind the school days of "free arm movement writing"—that tells it all.

POSITION

The "bug" should be placed on the desk directly in front of you, about 12" from the edge of the desk to the corner of the "bug". The main lever should run about parallel with your arm. This should rest your arm on the foremuscles with the elbow off the table.

With your fingers on the dash button and making the dashes with a combined sideways and downward swing. If more operators would handle their "bug" this way, there'd be marvelously improved Morse on the air and we'd all enjoy our hobby more.

EVERYTHING AN OPERATOR NEEDS

Straight hand keys with a very pretty and exceptionally nice "feeling" main lever, finest quality steel; stainless steel bearing screws; 3/16" contacts; all on my new and attractive streamlined base casting. AMATEUR \$1.00, black base, cadmium parts; PROFESSIONAL \$1.65, black base, chrome parts, with circuit closing switch; DELUXE \$2.25, completely chrome throughout. Any operator will send better with these keys, and faster.

Semi-automatic ("speed keys"). All using same remarkably fine balanced main lever with which it is a distinct pleasure to send. Using the newly developed metal, Beryllium Copper, for the main spring; and using stainless steel for dot and dash coil springs and stainless steel main bearing pin and bearing screws. Bakelite insulation and molded bakelite paddle and knob. 3/16" contact points manufactured to my own specifications by Baker of New Jersey, one of the finest contact point manufacturers in the country. AMATEUR \$5.50 same main lever and "feel"

as the others but on a light base and with somewhat lighter other parts to bring the cost down. Black base. STANDARD \$7.50 no circuit closer and with 10x32 screws; black wrinkle base. But same huge one piece iron casting as I've always used. DELUXE \$9.50, pigtail electrical connections; 1/4 by 32 massive adjustment screws with neat "instrument knurl" heads, all metal parts chromium plated; base "multiform" finish to resemble smooth marble. Let it get dusty after a year or so and merely wipe it off with cloth to look like new.

AC/DC audio oscillator \$5.95 complete with three tubes.

Operators model Mac Auto \$29.75; Recorder \$29.75; Tape Puller \$12.00.

Commercial model Mac Auto complete with finest quality tape pulling motor and with polarized relay, all mounted on one heavy base \$90.00 and good for speeds in excess of 100 wpm. Commercial model Recorder \$90.00.