Introduction

The VEC-204 *Electronic Keyer Paddle with Memory* is an iambic keyer and paddle combination. The VEC-204 is a microprocessor controlled keyer that provides iambic key operations and dot-and-dash memory to make sending perfect code easier. It has tunable code speed, code weight, and sidetone frequency; it supports both direct and grid-block keying outputs. You also get to choose between Iambic Type "A" and Type "B" keying. It even has a non-volatile memory to record and play a message of your choice.

Control Functions

1. The **Power** button turns the unit ON and OFF. The power is ON when the button is locked in the "in" position and the LED is lit and OFF in the "out" position.

2. The **Semi-Auto/Auto** button allows semi-automatic "bug" and manual operations. The keyer generates dots automatically. Dashes are manually made. The keyer is completely manual when only the dash is used. Semi-Auto is active when the switch is locked in the "in" position and Auto is active in the "out" position.

3. The **Message** button lets you record and play a message from the non-volatile memory. It is a momentary time sensitive push-button.

4. The **Speed** control, located on the left side of the unit, varies code speed from 2 to 65 WPM. Turn the control clockwise to increase speed and counter-clockwise to decrease speed.

5. The **Volume** control, located on the left side of the unit, adjusts the sidetone level of the internal speaker. Turn the control clockwise to increase the volume and counter-clockwise to decrease the volume.

6. The **Weight** control varies the code weight from approximately 10% to 190%, with the standard dot defined as 100% weight. The standard dot-dash-space ratio is 1:3:1 (trimpot at mid-range). This control is accessed through a small hole on the rear of the unit and may be adjusted using a small flat-headed screwdriver. This control is turned clockwise to increase dot and dash lengths and counter-clockwise to decrease dot and dash lengths.

7. The **Tone** control sets the desired sidetone pitch from approximately 200 to 1000 Hz. This control is also accessed through a small hole on the rear of the unit and may be adjusted using a small flat-headed screwdriver. This control is turned clockwise to raise the pitch and counter-clockwise to lower the pitch.

8. The **Key Output** circuit supports both positive and negative keyed radios. The VEC-204 can only key one type of transmitter at a time. This is an internal jumper selected option. The unit is factory set to direct keying (most solid state radios). To change to grid-block keying (most radios with tube finals) the power must be off, then remove the paddle to access the jumpers inside the case. Locate jumpers JMP1 and JMP2. JMP2 is directly behind the RCA jack. JMP1 is approximately one inch behind the RCA jack. Set ***both*** jumpers JMP1 and JMP2 to the "G" position. To key a solid state transmitter, set both jumpers to the "D" position.

   Note: *Power must be off when changing the jumper settings.*

9. The **Iambic Type A/B** mode is also set inside the unit with a jumper. The unit is factory set for Type "A" Iambic. If you prefer Type "B" Iambic, remove the paddle to access the jumper. Locate jumper JMP3 near the Speed control and set it to the "B" position. For Type "A" Iambic, set the jumper to the "A" position.

   Note: *Power must be off when changing the jumper settings.*

   When a squeeze is released during an element (dot or dash), type "B" adds the opposite element. Type "A" just finishes the element in progress and does *not* produce a following alternate element. For example, in Type "A" Iambic, a squeeze release during the "dah" in the letter A will produce "dit dah" (A). In Type "B" Iambic, a squeeze release during the "dah" in the letter A will produce "dit dah dit" (R).

Connections

1. A nine volt battery (not included) may be installed. Remove the case by removing the screws on the bottom that secure it to the paddle. A battery clip, located inside the case, is provided for installing a nine volt battery.

2. A 12 Vdc power supply may also be used to power the VEC-204. A 2.1mm coaxial plug with a positive center and a negative sleeve should be used to power this unit. The battery is automatically disconnected when external power is used.

3. The keying circuit allows keying of grid-block and solid state transmitters. Keying output connection is made with a quality standard shielded RCA cable between your radio key input and the VEC-204's **Key Output** jack.

   Note: *Consult the transmitter's instruction manual to determine which output to use. When in doubt, try both jumper positions. The transmitter will key continuously when the jumpers are connected to the wrong positions.*

Keyer Operation

1. A nine volt battery or an optional power adapter may be used to supply power to the keyer.

2. The keyer should be turned on by pressing the **Power** button and the LED is lit.

3. The **Semi-Auto/Auto** button should be in the "out" position for automatic operation.

4. The user should now start sending with the paddle and adjust volume, tone, weight, and speed to his or her preference.

5. The dot and dash memories make sending easier. The memories allow the user to key a dot before the completion of a dash and vice versa. This feature can be checked by setting the keyer to the lowest speed and tapping first the dash lever and then the dot lever before the completion of the dash. The keyer will provide both the dash and the dot. The dash memory can be checked in a similar manner. The dot insertion feature allows the user to insert a dot by tapping the dot lever while holding the dash lever in. The dash insertion feature allows the user to insert a dash while holding the dot lever in. The Iambic operation feature allows sending of alternate dots and dashes when both paddles are squeezed. The first paddle contacted will determine whether a dot or dash occurs first.

6. The user may select either **Iambic A** or **B** according to his or her preference.

Message Memory

The **Message** button is used to record and play your message. To record the message, press and hold the **Message** button until the keyer plays "GO" (–––• –––) in Morse code and the LED flashes. You may now key in the message of your choice. As you pause after every word, the keyer will play a "W" (•––) over the sidetone speaker to show that it is inserting a word break (uses one unit of memory). If you make a mistake entering a word, you can back up over it by pressing and releasing the **Message** button. The keyer will erase the last word, then play the word before it (if any) to let you know where you stopped. If deleting the first word of the message, the keyer will play "GO" instead. At the end of your message, press and hold the **Message** button until the keyer sends an end of message character "+" (•–•–•) and the LED stops flashing. If you try to save more characters than you have memory, the keyer will automatically end your message and send you an end of message character. To play the message, momentarily press the **Message** button. On-going message can be stopped by tapping the paddle. The speed, weight, and tone *cannot* be changed during message sending or message recording. Also, the output keying circuit is disabled during recording.

The non-volatile memory is set up for *only one* message. There are 507 units of memory, which can record up to 507 characters (nine elements maximum per character--an element is a dot or a dash). Only the embedded commands and the rarely used 7-, 8- and 9-element characters require two units of memory. When there are ten or less units of memory remaining, the LED will flash faster to let you know the memory is running low.

Note: *The Semi-Auto/Auto button must be in the "out" position for message recording.*

Embedded Commands:

While in the message recording mode you may use embedded commands for special features. To use an embedded command simply store the two-character embedded command code within your message.

/L Creates a message loop (message repeat). Notice any character recorded after "/L" will not be sent.
Example: BEACON AA5CS 5 W /L

/N Inserts a contest serial number, in the range of 001 to 9999, into the message. Leading zeros are sent as "O" (–––). Only three digits are sent for numbers less than 1000--use leading zeros when appropriate. The serial number is automatically incremented each time it is sent and updated in the non-volatile memory. The serial number is set to the same one as before when power on. If a different serial number is

desired, it must be programmed during power up. To initialize the serial number, press and hold the **Message** button while turning the power on until the keyer plays "GO" (–•– ––) and the LED flashes. You must then enter *four* numbers in Morse code for a valid serial number, leftmost digit first (invalid numeral code will automatically convert to zero). All numbers must be in the proper Morse code format. For example, the number "1" must be "•––––" and number "0" must be "–––––". When four numbers are entered, the keyer will automatically send an end of message character "+" (•–•–•). The keyer then resumes with normal operation when the LED stops flashing. The serial number can be set from 0000 to 9999 (number 0000 will automatically convert to 0001). If the serial number is incremented from 9999 it will wrap around to 0001, skipping 0000 since it is not used.

Example: YOU ARE CONTACT NR /N

/S Inserts an extra word space into the message.

// Stores the slash character "/" into the message.

Technical Assistance

If you have any problem with this unit first check the appropriate section of this manual. If the manual does not reference your problem or your problem is not solved by reading the manual you may call VECTRONICS at 601-323-5800. You will be best helped if you have your unit, manual and all information on your station handy so you can answer any questions the technicians may ask.

You can also send questions by mail to VECTRONICS, 1007 HWY 25 South, Starkville, MS 39759 or by Fax to 601-323-6551. Send a complete description of your problem, an explanation of exactly how you are using your unit, and a complete description of your station.

Notes

Morse Code Character Set[1]

A	●–	I	●●	S	●●●
B	–●●●	J	●–––	T	–
C	–●–●	K	–●–	U	●●–
D	–●●	L	●–●●	V	●●●–
E	●	M	––	W	●––
F	●●–●	N	–●	X	–●●–
G	––●	O	–––	Y	–●––
H	●●●●	P	●––●	Z	––●●
		Q	––●–		
		R	●–●		

1	●———–	4	●●●●–	8	———●●
2	●●–––	5	●●●●●	9	————●
3	●●●––	6	–●●●●	0	—————
		7	––●●●		

Period	[.]	●–●–●–	$\overline{AAA}$	Quotation Mark	["]	●–●●–●	$\overline{AF}$
Comma	[,]	––●●––	$\overline{MIM}$	Hyphen or Dash	[-]	–●●●●	$\overline{DU}$
Question Mark	[?]	●●––●●	$\overline{IMI}$	Underline	[_]	●●––●–	$\overline{IQ}$
Fraction Bar	[/]	–●●–●	$\overline{DN}$	Dollar Sign	[$]	●●●–●●–	$\overline{SX}$
End of Message	[+]	●–●–●	$\overline{AR}$	Left Parenthesis	[(]	–●––●	$\overline{KN}$
End of Work		●●●–●–	$\overline{SK}$	Right Parenthesis	[)]	–●––●–	$\overline{KK}$
Double Dash,				Wait		●–●●●	$\overline{AS}$
Pause or Break	[=]	–●●●–	$\overline{BT}$	Understood		●●●–●	$\overline{SN}$
Semicolon	[;]	–●–●–●	$\overline{KR}$	Starting Signal		–●–●–	$\overline{KA}$
Colon	[:]	–––●●●	$\overline{OS}$	Error		●●●●●●●●	$\overline{HH}$
Apostrophe	[']	●————●	$\overline{WG}$	Paragraph	[¶]	●–●–●●	$\overline{AL}$

Note:

1. FCC testing requirement consists the 26 letters, the 10 numerals, the period, the comma, the question mark, $\overline{AR}$, $\overline{SK}$, $\overline{BT}$ and fraction bar [$\overline{DN}$].

Signals Used In Other Radio Services

Interrogatory	●●–●–	$\overline{INT}$
Emergency Silence	●●●●––	$\overline{HM}$
Executive Follows	●●–●●–	$\overline{IX}$
Break-in Signal	—————	$\overline{TTTTT}$
Emergency Signal	●●●–––●●●	$\overline{SOS}$
Relay of Distress	–●●–●●–●●	$\overline{DDD}$

Schematic