

PADDLETTE KP-3 MANUAL

I. INTRODUCTION

Thank you for your purchase of our Model KP-3 miniature keyer-paddle. The KP-3 combines a Paddlette sub-miniature iambic paddle key with an Embedded Research TiCK-3 CMOS keyer IC in a compact, light-weight package. Totally self-contained, it includes the key, CMOS keyer circuitry, push-button momentary 'on' switch, piezo sounder, lithium coin cell and a 1/8" (3.5mm) output jack.

Its footprint is only 1-1/2" x 2" and its weight, including battery, is a mere 1.7 ounces. The 1-1/2" x 1-1/2" magnetic hold-down system keeps the KP-3 rock solid on bench or knee mount and affixing the straight key adapter to its side allows it to function as a straight-key--an option inherent in the TiCK family of keyer chips.

The CMOS IC 'goes to sleep' when there is no input from the paddles or push button, pulling only a microamp from the 200 milliampere-hour, 3-volt lithium cell. Key down drain is about 0.6 milliamp. Battery life for the average user should exceed one year.

The cleverly designed TiCK chip provides a wide menu of functions, all accessed and executed by a single push-button momentary switch and the two paddles, guided by the piezo sounder.

The iambic paddle key portion of the KP-3 employs the same basic design and materials as the Paddlette BP. Fine pitch adjusting screws permit setting gap to a resolution of better than 0.001" and the uniform 0.5 ounce operating force makes for easy, tireless keying.

The knee mount is the same one used with the original Paddlette and with the 1-1/2" x 1-1/2" magnetic hold-down it provides a rock solid mount for the KP-3. An extra magnetic plate and a straight key adapter are included, making possible a second operating position on the bench as well as use of the key as a straight or 'pump' key when the SK feature is accessed on the TiCK menu.

II. ABOUT THE KEY - INSTRUCTIONS

1. Magnetic hold-down:

Your KP-3 comes with a 1-1/2" x 1-1/2" magnetic plate bonded to the bottom cover. The knee mount has an identical magnetic plate bonded to it. Place the key on the knee mount in normal operating position and check the strong magnetic attraction. Now rotate the KP-3 90 degrees and note the sharp decrease in magnetic attraction. Obviously the factory installed orientation is correct. To install the key on work-bench, mate one of the other two magnetic plates with the KP-3 bottom plate phasing it for maximum attractive force. Select the desired location on your bench and mark it (surface must be flat, fairly smooth, and clean). Now peel off the liner and place the key back on the spot marked. Press down to insure good bond. Now the KP-3 can be removed and replaced as desired. The remaining plate (marked "extra") is provided for setting up a second operating location. Additional plates are available at 2 for \$1.00 plus \$1.00 shipping.

2. Use as a straight (pump) key:

Peel the liner off the magnetic straight key adapter and bond it to the side of the keyer. Place on knee mount or bench magnet and follow menu instructions for straight key operation. The action will feel different from that of a conventional straight key like the J38 because of the flexible nature of the spring brass reed, but use a light touch and you will soon get used to it.

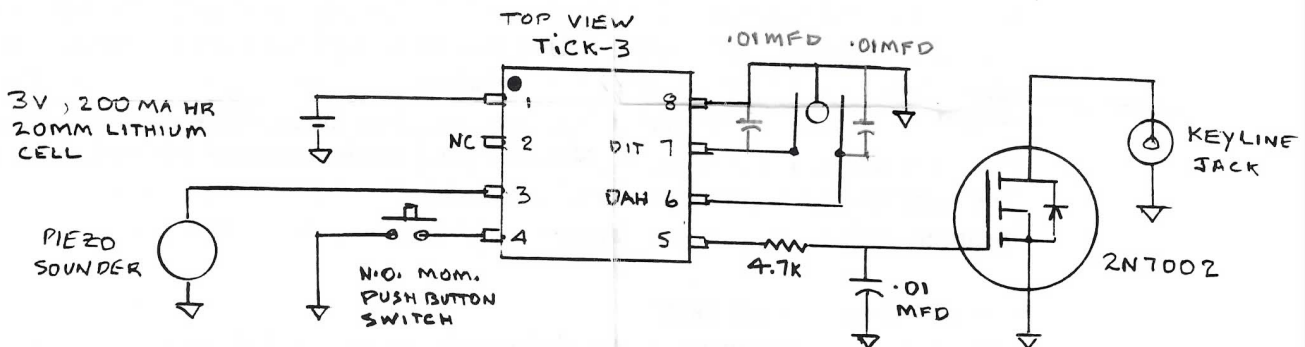
3. **Gap Adjustment:**
 Keys are shipped with contact gaps set at about 3 mils (0.003"). Should you wish to increase or decrease gaps, proceed as follows:
 - A. Remove #4 hex key stored in hole in reed support and use it to loosen slightly (turn ccw) the #3-48 lock screw in the top of each post.
 - B. Now insert key into the head of the #3-48 gap adjust screw located in the side of each post. Twenty degrees rotation changes gap by about 1 mil (0.001"); adjustment range is about 10 mils.
 - C. After setting gap(s) to your liking, retighten screw in the top of each post. Do not over-tighten. Replace hex key in its hole in base.

Operating force is independent of gap width and runs about one-half ounce. This provides sufficient restoring force for fast keying with minimum operator fatigue.

III. ABOUT THE KEYSER

1. The Paddlette KP-3 uses the Embedded Research TiCK-3 CMOS micro-controller, surface mount version, to control eight keying parameters plus two 50 character memories and a beacon - see menu. All of this is accomplished through a single push button switch and the two paddles, guided by the Morse code characters emitted by the piezo sounder as the keyer proceeds down the menu.
2. To select and control a parameter, push and hold down the momentary push button switch and listen to the Morse code characters emitted by the sounder. Upon hearing the desired letter or number, immediately release the button and follow the instructions for that item. There are two exceptions to this general rule:
 - 2.1 To access menu item #1, press and immediately release push button--don't wait for a Morse character--there is none. If there is a message stored in memory #1 it will play back upon releasing the push button.
 - 2.2 When you hear the Morse 'A' at menu step 5, immediately release button and follow the instructions for item 5 or item 6. From that point on operation is straightforward, i.e. push and hold button down until desired Morse character is heard, then release and follow procedure outlined in menu.

Circuit Diagram



III. PADDLETTE KP-3 MENU

Menu Item #	Piezo Morse Response	Keying Parameter	Procedure
*1	None	Play msg. #1	Plays message #1 (if there is one)
2	. E	Play msg #2	Plays message #2 (if there is one)
3	... S	Speed adjust	Press dah paddle to increase; press dit paddle to decrease
4	- T	Tune	Keys xmtr for tuning. To unkey, press either paddle
**5	.- A	Administration	Release button immediately on hearing 'A'. To move to menu #9, push and hold OR.
6	.. I	Input message set-up	To move to menu item #7, push button, release, then push and hold.
***7 1	Message #1 input	Key in msg #1 up to 50 characters. Push & release button to review message.
8	..--- 2	Message #2 input	Key in message #2 up to 50 characters. Push and release button to review message.
9	.-. P	Paddle select	Press paddle you wish to be the dit paddle.
10	.- A	Audio select	Press dit paddle to enable sidetone piezo. Press dah to disable. Default mode-enable.
11	...-. SK	Straight-key select	Press either paddle to enable. To return to keyer mode cycle back to item 11 and press either paddle.
12	-- M	Iambic mode	Press dah for iambic mode B (common) Press dit for iambic mode A (older style) Default mode-iambic mode B
13	-... B	Beacon mode	Press either paddle to enable. Then access menu item #1 or #2 to start beacon play of message. To disable, cycle back to item #13 and press either paddle.
14	.- K	Keyer mode	Release button and keyer returns to normal operation.

* To play message #1 push and immediately release button. If you hear a dit, you have held the button down too long!

** If you don't release button immediately upon hearing 'A' the keyer will move to menu item #14.

*** A character is any Morse letter, single digit or punctuation mark.

WARNING: Pushing and releasing the push button causes an immediate current drain of about 550 microamps. Touching either paddle reduces this drain to 1 microamp (sleep mode). So if you actuate the pushbutton be sure to execute the called-for procedure (every procedure involves touching a paddle). If you fail to do this, or at least touch a paddle, the 550 ua drain will continue until the battery is exhausted--around 2 weeks! Therefore, always send a dit or a dah before leaving the shack! This does the same thing an ON-OFF switch would do, but without the extra cost and space it would occupy (200 ma hour/.001 ma = 200,000 hours = 23 years).

IV. POSSIBLE KEYER PROBLEMS AND SOLUTIONS

- 4.1 Problem:** No sound from piezo when paddle operates, but Morse characters sound when pushbutton held down.
Cause: Probably the 'dah' paddle was accidentally touched when in 'audio select' mode, which disables the sidetone from paddle operation but doesn't affect Morse symbols from being annunciated when button held down.
Solution: Cycle back to 'audio select'; release button and touch 'dit' paddle to enable sounder.
- 4.2 Problem:** Paddles reversed, i.e. right hand paddle sends dits instead of dahs.
Cause: Right hand paddle accidentally touched while in 'paddle select' mode which made it the 'dit' paddle.
Solution: Cycle back to 'paddle select', release button and touch the left paddle, thus making it the 'dit' paddle.
- 4.3 Problem:** Keying doesn't "feel right" when trying to send some of the 'iambic seven' letters (C,F,L, etc.), i.e. the last dit or dah doesn't sound.
Cause: Probably the 'dit' paddle was touched accidentally while in 'iambic mode select' which changes keying mode from the common mode B to the original Curtis mode A.
Solution: Cycle back to 'iambic mode select', release button and touch the 'dah' paddle which switches keyer back to the more common mode B. Of course, if you are used to mode A and you found yourself in mode B, the opposite procedure should be followed to get back to mode A.
- 4.4 Problem:** One paddle inoperative during normal keying.
Cause: A speck of dust or lint lodged between the reed and center contact.
Solution: Pass a piece of clean white paper between reed and center contact while pressing on the paddle; open gap to admit paper if necessary. *Do not* file, use sand or emery paper or any other abrasive material--the paper will work just fine!
- 4.5 Problem:** Piezo output faint, operation erratic.
Cause: Low battery voltage.
Solution: Measure battery voltage with DVM, VTVM or a voltmeter with sensitivity of at least 10,000 ohms per volt. To do this, turn key over, output jack facing you, and insert voltmeter plus test probe in small hole in bottom cover so it contacts the brass test plate. Touch voltmeter minus probe to the body of output jack. If voltmeter reads less than 2.6 volts, replace lithium cell. Replacement cells with welded solder tabs are available from the Paddlette Co. at \$2.00 each plus \$1.00 shipping. To replace weak cell, unsolder leads, pry up old cell and remove. Remove any old adhesive residue from bottom cover (roll it off with your finger). Then remove liner from new cell exposing adhesive, and stick cell down to cover in outline drawn on cover. Now carefully solder leads to terminals: red to + terminal (stuck to cover) and black to - terminal. Be careful not to accidentally short cell even for a second or two--it will materially shorten life. Measure cell voltage--it should measure 3.1 to 3.3 volts.