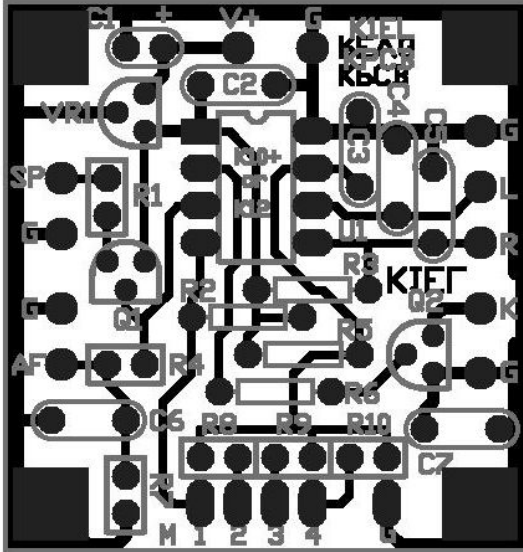


KPCB REV G -- K1EL Systems 5/21/2008



Part List

- U1 – K10+ or K12 I.C.
- R1 – 100 ohms 1/8W Resistor (Brown Black Brown)
- R2, R3, R6 – 4.7K 1/8W Resistor (Violet Yellow Red)
- R4, R7 – 10K 1/8W Resistor (Brown Black Orange)
- R5 – 15K 1/8W Resistor (Brown Green Orange)
- R8 – 22K 1/8W Resistor (Red Red Orange)
- R9 – 33K 1/8W Resistor (Orange Orange Orange)
- R10 – 47K 1/8W Resistor (Violet Yellow Orange)
- Q1, Q2 – 2N2222 Transistor
- VR1 – 5V Voltage Regulator
- C1 - .1 uF Capacitor (104) .1" Lead Spacing
- C2 - 2.2uF Tantalum Capacitor (2.2-25)
- C6 - .01uF Ceramic Capacitor (103)
- C3, C4, C5, C7 - .001uF Ceramic Capacitor (102)
- 8 Pin Socket

Kit Assembly

- 1) Install the resistors R2, R3, R5, and R6
- 2) Install the 8 pin socket at position U1
- 3) Install Q1 and Q2. Be sure that the flat sides align with the silkscreen
- 4) Install the voltage regulator VR1
- 5) Install all capacitors; **observe polarity on C2**, plus side (white mark) toward VR1, see photo on page 3.
- 6) Install the remaining resistors; these are installed on end as shown in the photo on page 3

Kit test procedure

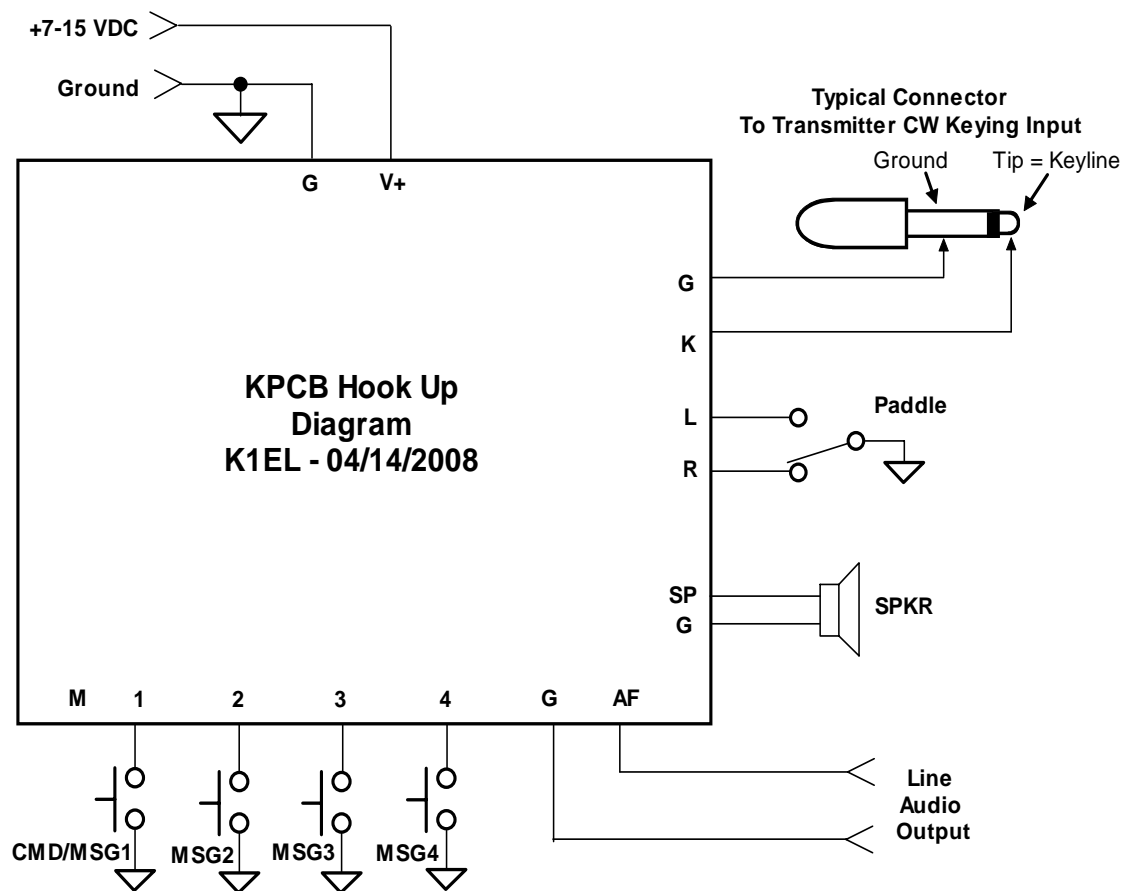
- 1) Attach a speaker between pad **SP** and a ground pad **G**
- 2) Attach a power supply to pad **V+** and ground. Any voltage between 6 and 16 VDC is sufficient. The positive power supply lead goes to **V+** and ground to **G**.
- 3) Turn power on and you should read +5V across U1 pins 1 and 8, with the plus meter lead on pin 1.
- 4) Turn power supply off
- 5) Install the keyer IC (K10+ or K12) oriented as shown in the photo on page 3
- 6) When power is re-applied you should hear an **R** sent in Morse code from the speaker.
- 7) By grounding the **L** and **R** pads you should get a stream of dits and dahs.
- 8) Grounding both **L** and **R** will generate an alternating dit and dah pattern.
- 9) Ground pad **M1**, after about 3 seconds it will respond with an **R** then unground **M1**
- 10) After about 5 seconds it will respond with a question mark.
- 11) Ground the message pads momentarily, each one will generate an **MT**
- 12) This completes the kit checkout. At this point you can complete assembly as described below.

Application Information

This kit is most commonly used in one of two ways. The first is to embed the circuit board in an existing transceiver. The KPCB will obtain power from the transceiver and will require paddle inputs from a connector. At least one pushbutton is required to set command mode. Additional pushbuttons can be added for messages. The AF output from the KPCB will be used to inject sidetone into the transceiver's audio chain. The voltage divider resistors R4 and R7 may need to be adjusted to provide a comfortable sidetone injection level. Be sure to inject the signal after the transmit mute circuit so that sidetone will not be muted during transmit. Since the

KPCB's keying output is open collector it can in almost all cases be connected across the transceiver's keying input. As long as the keying input rests high and is pulled low to key the transmitter it will work fine.

The second way to use the KPCB kit is to build it into a standalone enclosure. Connectors will be required for paddle input and key output. Also command/message pushbuttons are required. You can power the keyer from a battery that resides in the enclosure or from an external power source. In both cases an on/off switch should be wired in series with the power source. The K12 has a power down sleep mode which can be taken advantage of easily. In this case the on board voltage regulator is not utilized and must be removed. The KPCB is instead powered directly from a battery that provides something between 3 and 5 V. Three AAA cells work perfectly. The K12 will go into sleep mode when it is sitting idle and will draw a just few microamps.



Refer to the K10+ or K12 IC datasheets for information on keyer commands and message operation. These ICs have lots of features which are worth learning about.

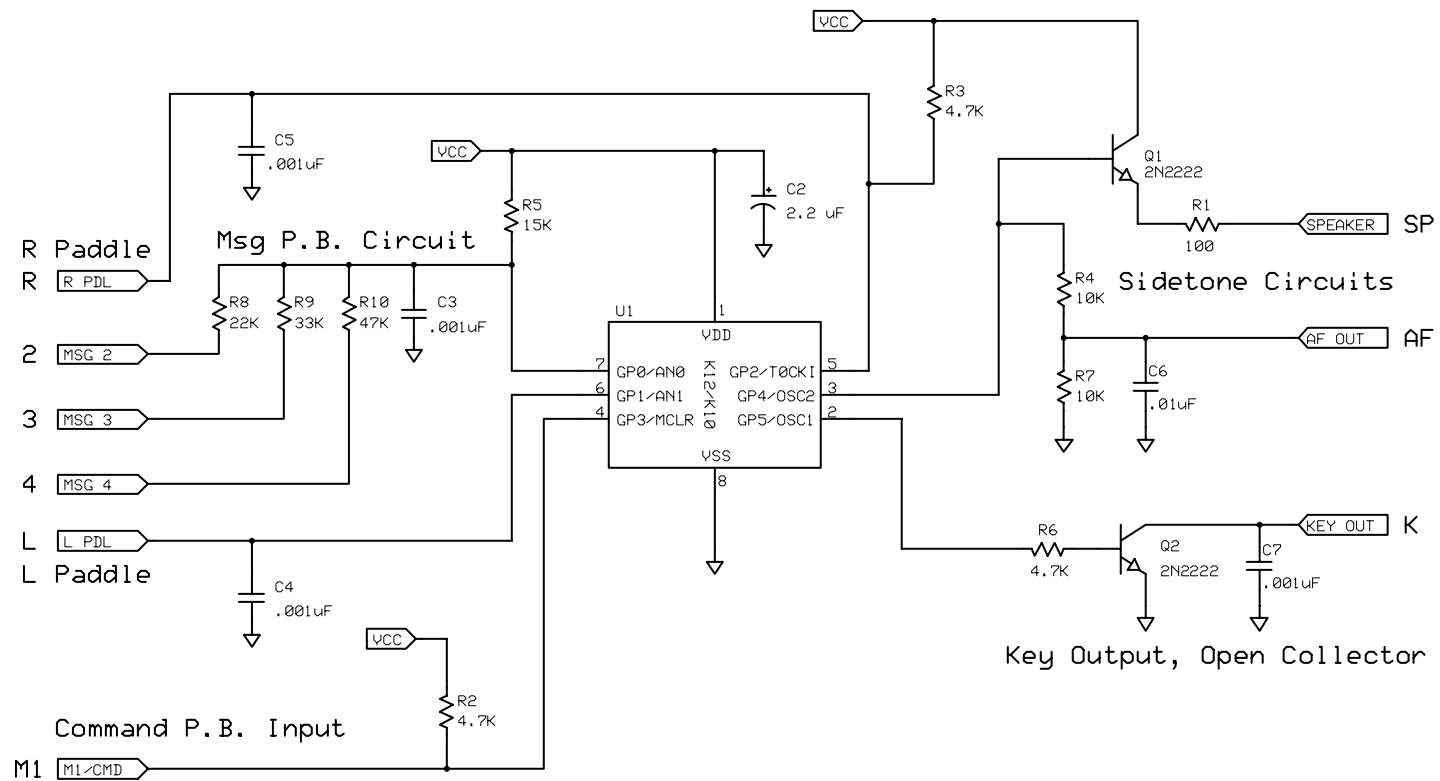
The KPCB kit is fully guaranteed, if you are not satisfied please return it for a full refund. Questions will be handled by snail-mail or e-mail via these addresses:

Steven T. Elliott K1EL
43 Meadowcrest Drive
Bedford, NH 03110 USA

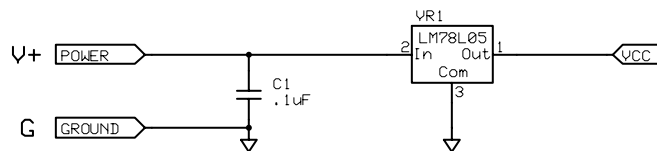
or e-mail: K1EL@k1el.com

Watch the K1EL Website for latest updates and new product offerings: <http://www.k1el.com>





+5V Voltage Regulator



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