Parts List, Logikit CMOS-4

1	PC Board, CMOS-4
1	Enclosure, CMOS-4
1	Knob
4	Pushbutton
4	Pushbutton cap
1	Transistor, MPSA92, PNP high voltage
3	Transistor, 2N2222A
1	Battery holder, 3xAAA
1	Speaker
1	Header, 3 pin male
1	Shorting block
1	Diode, 1N914
1	Potentiometer, 500 Ω linear, board mount
1	Potentiometer, 100k Ω linear, chassis mount
1	Jack, 2.5 mm, DC power, chassis mount
1	Jack, RCA hex-flanged, chassis mount
1	Jack, stereo 1/8", chassis mount
1	Voltage regulator, 78L05, 5 volt, TO-92
2	Hex spacer, 1"
2	Spacer, 3/8" long, 1/4"dia #4 round, nylon
1	Socket, 40 pin DIP
1	Socket, 8 pin DIP
1	Capacitor 0.01 µF 10% ceramic
3	Diode, 1N4007
2	Diode, transient voltage suppressor, 500W 5V
1	Diode, transient voltage suppressor, 500W 22V
1	Resonator, ceramic, 2 MHz
1	Capacitor, 0.01 µF 5%, polyester film
8	Capacitor, 0.01 µF -20% +80% 50V, ceramic
1	Capacitor, 0.1 µF 20%, ceramic
1	Capacitor, 10 µF 20%, electrolytic
1	Resistor, 100 Ω 1/4 W 5%
1	Resistor, 330k Ω 1/4 W 5%
11	Resistor, 15k Ω 1/4 W 5%
3	Resistor, 1k Ω 1/4 W 5%
2	Resistor, 390 Ω 1/4 W 5%
1	Resistor, 1M Ω 1/4 W 5%
1	Resistor, 6.8k Ω 1/4 W 5%
12	Screw, 4-40 X 1/4", SS, ph pan hd MS
2	Screw, 4-40 X 3/4", SS, ph pan hd MS
6	Nut, 4-40 SS
6	Lock washer, 4-40, SS, split ring
1	Tape, double-sided, 1" wide
1	CPU, Motorola MC705C8ACPE
1	EEPROM, CMOS, serial, 24LC16B/P
10	Wire, 24 gauge, various colors

Assembly Instructions – Logikit CMOS 4

Assembling your kit will require 1 or 2 evening's work. You will need a small soldering iron. Any temperature-controlled soldering iron with the proper size tip will work fine; if the soldering iron is not temperature controlled, then the iron should be no more than 25 watts. You will also need suitable solder. The solder must be rosin flux, electronic grade solder, NOT acid flux, and NOT water soluble flux. Note that if you build your kit with these fluxes, all warranties are void and we will not offer any form of repair service. If you have solder and don't know what it is, don't use it!

The following solders are recommended for assembling your kit:

Kester: Flux Core types "44", and "285", 60/40 or 63/37 (Sn/Pb) content, in diameters between 0.020" (0.5 mm) and 0.035" (0.89 mm), with 0.020" being the preferred diameter.

Multicore (previously Ersin-Multicore):
RA (Activated Rosin) Type Flux Core, from .022" to .032" dia.
RMA (Mildly Activated Rosin) Type Flux, with diameters from .022" to .032"

Radio Shack Rosin Core Solders:

R/S Part #	Content Sn/Pb	Diameter	Spool Weight
64-017	60/40	0.032" (0.81 mm)	0.5 oz (14g)
64-005	60/40	0.032" (0.81 mm)	2.5 oz (71g)
64-009	60/40	0.032" (0.81 mm)	8.0 oz (0.25kg)

(The above solder recommendations are copied from Elecraft manuals with permission. Thanks, Elecraft!)

Other tools you will need are a Phillips screwdriver, a small blade straight screwdriver, one and preferably two pairs of long nose pliers, a pair of regular pliers, a wire cutter, a wire stripper, a 6" or 15 cm ruler, and a magnifier. A volt-ohm meter would be useful as well.

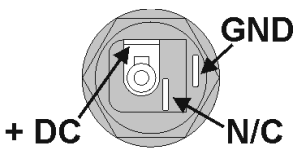
Virtually all electronic components include markings indicating their value. When assembling a kit, it is a good idea to orient the components in a consistent manner that allows you to easily view the markings. Install all resistors such that their color coding bands all run in the same direction (e.g. all to the left, or all to the top). Similarly, all capacitors should be mounted so that their value can be read by holding the PC board in one of two different directions (from the front or from one side). Diodes, however, MUST be oriented according to their polarities.

Assembly

First, check the parts list against the kit contents. Some form of organization is most helpful, such as a cup-cake pan or egg carton. Doing assembly on a cloth will help preserve the finish of the chassis and to prevent dropped components from rolling off the work surface. Now, let's start building!

☐ Install the speaker at the rear of the chassis bottom, using four (4) 4-40 X 1/4" screws (6.4 mm long) with split lockwashers and nuts. Position the speaker so that its terminals face the left side of the chassis as viewed from the front. Before tightening the nuts, slide the speaker as far to the right as possible.

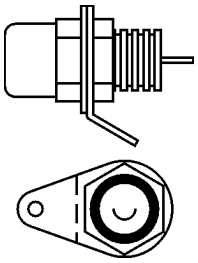
☐ Take the black plastic nut off the black plastic power jack and install. There may be some mechanical interference with the screw and nut on the adjacent speaker. The jack should be mounted so the voltage input tab (labeled "+ DC" in the illustration, is facing upward (see illustration). The easiest way to mount the jack is to hold the plastic nut against the



Power Jack

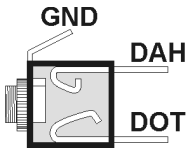
inside rear wall of the chassis, push the jack in a small distance, and start turning the nut. Once the nut is started, it is most easily turned by pushing it along with your fingers or a flat-blade screwdriver.
When the jack is fully seated, firmly tighten the nut. If you experience too much difficulty in doing this, you can remove the screw and nut from that one corner of the speaker (only) and proceed without it – having a screw & nut in that corner of the speaker is not necessary for proper function.

☐ Locate the hex-flanged RCA jack. Before installing the jack in the lower of the two remaining holes on the back of the chassis, remove the nut and solder lug. Bend the solder lug that is on the assembly at a 45 degree angle, so that it does not lie flat (see illustration). The solder lug goes against the inside wall of the chassis. Ensure that the bend is made far enough out from the center hole that the nut will not compress the bend. Lightly tin the area of the solder lug around the small hole, being careful to not close the hole with the solder. The lug may be hard to solder to later if it is not pre-tinned.



☐ Insert the body of the hex-flanged RCA jack through the rear of the chassis. Slip the solder lug over the threaded body of the jack, with the bent tinned part of the lug facing inward. Point the solder lug toward the power connector on the other side of the chassis and firmly tighten the assembly.

☐ Mount the 3.5 mm stereo phone jack in the remaining hole on the rear of the chassis. Mount it so the solder tab on the side of the jack is pointed upward. Tighten securely, but do not over-tighten. Now, bend the top tab so that it points away from the back of the chassis at a 45 degree angle (see illustration).



☐ Locate and install R5, the Keyer Speed Control potentiometer in the hole provided in the front panel. Note that there is a smaller 'keying' hole below the hole for the shaft of the pot. This hole is for the small post which is attached to the threaded collar of the pot which prevents the pot from turning.

☐ The PC board is scored so the front portion, which will be used for the push buttons, can be snapped apart from the keyer PC board. Separate the two boards now, either using fingers, or fingers and pliers. **Use cloth or a paper towel between the tool jaws of the pliers and the PC board to avoid damage to the traces and silkscreening.** Then place the pliers in the center of the (smaller) pushbutton board, between the silk-screened "S2" and "S3" labels, hold the larger portion of the board in your other hand, and snap the smaller board apart from the larger board.

☐ Carefully install the four (4) pushbutton switches from the top (silk-screened side) of the pushbutton board. Press the switches down so they sit flat against the board, with the pins all the way in. Solder the pins on the bottom of the PC board. Note that the pins of the pushbuttons only fit into the PC board one way. They will not fit if turned 90 degrees.

☐ Press the push-button caps onto the shafts of the pushbuttons. Line up the slots in the caps so that they are all oriented parallel to the long edge of the PC board. **Use care** to keep the shafts vertical to the plane of the PC board while installing the caps.

☐ Attach the two 1" (25 mm) hexagonal standoffs to the bottom of the push-button board, using two 4-40 X 1/4" (6.4 mm) screws. Do not tighten the screws too hard. Set the board aside.

Examine the keyer PC board. The top is the side with the silk-screened component outlines. Note the following conventions:

- Ovals with two holes are always used for capacitors.
- Holes with circles around them are for one end of a resistor or a diode.
- All resistors are mounted vertically, in the hole inside the silk-screened circle. The upper resistor lead is bent over, close to the body of the resistor, and inserted into the hole next to the resistor body.

With the exception of the volume potentiometer, all parts are mounted on top of the board. All wire leads

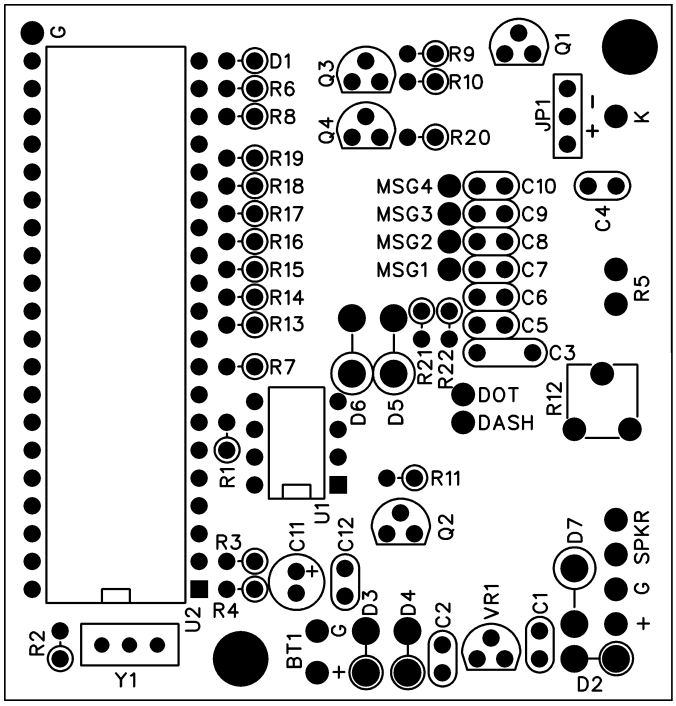
are soldered on the bottom side of the board.

☐ Mount and solder the ceramic resonator. This is the small rectangular ceramic device with three pins. The part is not polarized, so mounting either way is fine. It goes in the rectangle marked "Y1" at the end of the silk-screened outline for the 40-pin socket.

☐ Mount the 40-pin socket. Note that the socket has a notch at one end – position the socket so that notch matches the notch on the silk-screened outline. Solder two corner pins, on opposite corners, then inspect to insure that the socket is seated flat against the board. If it is not, reheat the appropriate connection while pressing the socket down. Solder all remaining pins.

☐ Mount and solder the 8-pin socket, again paying attention to the notch orientation.

☐ There are four transistors and one voltage regulator, all in similar black plastic packages. Note the three-hole placements for these packages on the board, with the silk-screened outline showing part orientation and the component designators (such as "Q1" for a transistor, and "VR1" for the regulator) printed next them.



☐ Bend the middle lead of Q1 (MPS-A92) backward (away from the flat front face of the device) and insert the transistor into the board so the orientation matches the board outline. Press the device down so the leads are not more than about 1/8" (3 mm) above the board, and solder.

☐ In a similar manner, mount and solder the three 2N2222A transistors, following the silk screened outline:

☐ Q2

☐ Q3 ☐ Q4

☐ Mount the voltage regulator, VR1, marked 78L05, in the same manner.

☐ The three-pin header strip mounts in the box labeled "JP1". The short side of the pins goes into the PC board holes. Solder one pin and then visually inspect to see that the header strip sits flat on the board and perfectly vertical. The plastic part of the header strip melts easily, so do not use the soldering iron for more than three seconds. If necessary, reheat the one connection and align the header to ensure correct positioning. (Do **NOT** put your finger on the pin you are reheating!)

☐ Install the shorting block onto the header. If you will start using the keyer with a solid state radio of recent manufacture, where a positive voltage is being keyed to ground, then the block should be installed on the center pin and the + pin; if a grid-block keyed rig (negative voltage, keyed to ground, most likely using tubes) is to be used, the shorting block goes on the center pin and the - pin.

☐ One of the capacitors is a dark brown epoxy-dipped capacitor with long leads, marked "103". This is the precision timing capacitor, C3. Mount and solder in the silk-screened box marked "C3"

☐ Locate another epoxy-dipped capacitor, light tan in color, with short leads, marked "103". This is the 200 volt capacitor bypassing the output. Solder this capacitor at C4.

☐ There are 8 identical capacitors, also marked "103". These may be either individual orange ceramic disk capacitors, or yellow epoxy-dipped capacitors on a cardboard tape. Solder them at:

☐ C1	☐ C5	☐ C7	☐ C9
☐ C2	☐ C6	☐ C8	☐ C10

☐ There is one tan-colored ceramic capacitor with short leads marked “104”. Solder it at C12.

☐ Install the 10 µF electrolytic capacitor at C11. Install the positive (+) lead, which is longer than the negative (-) lead, in the hole marked “+”.

☐ Your CMOS-4 kit includes seven diodes. Diodes are polarized and must be installed correctly. The banded end of the diode is the cathode. Diodes are installed vertically, with the wire attached to the bottom end inserted into the hole with the circle around it. The top wire is folded down next to the body of the diode. All diodes are installed with the **banded end up**.

For D2, D3, and D4, the silkscreen circle on the board is unfortunately not visible. For D2 the circle should be around the hole closest to the corner of the board. For D3 and D4, the holes with the circles are the ones closest to the edge of the board. The parts layout diagram on the previous page shows the location of the circles.

☐ D1 (1N914, glass body)
☐ D2 (1N4007,black body)
☐ D3 (1N4007,black body)
☐ D4 (1N4007,black body)
☐ D5 (SA5.0A, black body)
☐ D6 (SA5.0A, black body)
☐ D7 (SA22A, black body)

Resistors are installed in the same manner as the diodes, except that there is no polarity to worry about. Fold the top lead close the resistor body. Sometimes reading resistor values is difficult because of the pastel colors used to mark them. It can be helpful to use a magnifier to see the colors. It is never a bad idea to check each resistor with an ohmmeter to confirm a value before soldering.

There are eleven 15K resistors, (Brown-Green-Orange-Gold). Bend, install and solder these resistors at:

☐ R1	☐ R10	☐ R15	☐ R18
☐ R4	☐ R13	☐ R16	☐ R19
☐ R8	☐ R14	☐ R17	

☐ Install R2, 1M Ω, (Brown, Black, Green, Gold)
☐ Install R3, 330k Ω (Orange, Orange, Yellow, Gold)
☐ Install R6, 6.8k Ω, (Blue, Grey, Red, Gold)
☐ Install R7, 1k Ω, (Brown, Black, Red, Gold)
☐ Install R9, 390 Ω, (Orange, White, Brown, Gold)
☐ Install R11, 100 Ω (Brown, Black, Brown, Gold)
☐ Install R20, 390 Ω (Orange, White, Brown, Gold)
☐ Install R21, 1k Ω (Brown, Black, Red, Gold)
☐ Install R22, 1k Ω (Brown, Black, Red, Gold)

☐ Install R12, the 500 Ω trimmer potentiometer. This pot mounts on the BOTTOM of the board, and is soldered from the top.

☐ This completes parts mounting on the pc boards. Before going farther, inspect all solder connections

with a magnifier. Check for solder bridges across traces.

In the next steps you will cut wires to length, tin each end and solder to the PC board before installing the board into the keyer. Five different colors of wire are supplied with the kit. Since the colors may vary, we are leaving blanks for you to record the color you use for each wire. One wire color will always be black. Black is used for ground connections. **Do not** use the **black** wire except where specified.

☐ Select two wires of different colors. Cut each wire to a length of 2" (51 mm). Remove 1/8" (3 mm) of the insulation from each end of the wire. Twist and lightly tin the exposed wires. These wires, like all PC board wires, will be installed from the bottom of the PC board, and soldered on the top side.

Note the placement of the two PC board holes, both labeled "R5". Install (and solder) one of the two wires prepared above into the "R5" hole which is **closer** to the trimmer pot on the other side of the board. Record the wire color here: _____.
Install the other wire prepared above into the remaining "R5" hole (closer to the outside of the PC board, and record the wire color here: _____.

☐ In a similar manner, prepare 4 wires of different colors (NOT black). Cut each wire to a length of 3" (76 mm). Record the colors as you install them. Install the wires into the holes on the PC board at the following points:

MSG 1: _____ MSG 2: _____ MSG 3: _____ MSG 4: _____

Note: Some of the "G's" which have been silk-screened onto the top of the PC board may appear to be the number "6" instead of a "G". They are *all* "Gs".

☐ Prepare a **black** wire 2 1/4" (57 mm) long. Solder this wire to the hole marked "G", close to the corner of the board where diode D2 is located.

☐ Prepare two wires of different colors: 4 1/2" (114 mm): _____ 3 1/2" (89 mm): _____
Solder these wires to the two holes marked "SPKR".

☐ Prepare one 5" (127 mm) wire, _____, and solder it to hole "K" near the front corner of the board. For purposes here, the front of the board is the end on the *opposite* side from the 40-pin socket.

☐ Prepare a **black** 2 3/4" (70 mm) wire and solder it to the "G" hole next to the 40-pin CPU socket, on the end of the 40-pin socket which is **opposite** the resonator.

☐ Prepare two 4" (102 mm) wires of different colors. Solder one to "DOT" _____, the other to "DASH" _____.

☐ Prepare one 4 1/2" (106 mm) wire, _____. Solder it to the "**+**" hole in the corner next to diode D2.

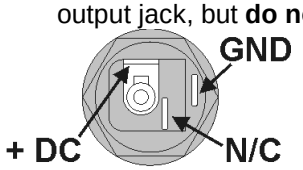
☐ Solder the wires from the MSG holes on the main circuit board to the matching holes of the push button switch board. That is, the "MSG1" wire goes to pushbutton "S1" etc. The wires are fed to the holes on the *bottom* of the push-button board – the side with no silk-screening – and soldered on the *top*. ***Caution***: At positions "S1" and "S4", be sure to use the holes closest to the silk-screened designators, as the other two holes are ground holes. Take care that your iron does not touch one of the pushbutton switch and melt either the body of the switch or the pushbutton cap.

☐ Solder the black 2 1/4" (57 mm) wire coming from the "G" hole close to the corner of the board where diode D2 is installed to the ground hole near "S1" on the push button board. This hole is unmarked.

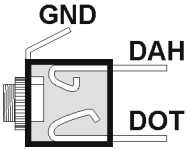
☐ Cut the battery holder leads to 2 3/4" (70 mm) long. Solder them to the holes marked "BT1" near the resonator at the end of the CPU socket. The red wire goes to the "**+**" hole, the black wire to the "G"

hole, feeding the wires from the bottom and soldering on top.

☐ Prepare a black wire 2 1/4" (57 mm) long. Solder one end to the ground (GND) terminal of the black plastic power-in jack. The other end of the wire goes to the solder terminal on the hex-flanged RCA output jack, but **do not solder that connection yet**.



Power Jack



☐ Prepare a black wire 1 1/2" (38 mm) long. Solder one end to the top (GND) terminal of the paddle input jack. The other end of this wire goes to the (GND) solder terminal on the hex-flanged output jack, but **do not solder yet**.

☐ Prepare the keyer PC board to be mounted to the chassis. To do so, orient the board so that the MSG wires and the push-button board are facing the front of the chassis. Dress the two wires from R5 toward the front of the board. Dress all other wires straight back from their holes.

☐ Identify the two wires from coming from position R5 on the main board. Solder the wire closer to the inside of the board (check your earlier note to get the color) to the center terminal of the speed pot. Solder the other wire to the terminal closest to the bottom of the chassis.

☐ Place the pushbutton board spacers over the matching holes at the front of the chassis. When operating the keyer, button 1 (S1) should be on the left as you look at the front of the keyer. Screw in two 4-40 x 1/4" (6.4 mm) screws. Tighten lightly, but not firmly.

☐ Install one of the 4-40 x 3/4" (19 mm) screws (the long screws) up from the right front corner bottom of the chassis. Place a 3/8" (9.5 mm) round plastic spacer over it. Now, place the circuit board mounting hole over the screw, place a split ring lockwasher over the screw and start a nut. Once the nut is started, do not tighten it further at this time.

☐ In like manner, install the other 4-40 x 3/4" (19 mm) screw, spacer, lockwasher and nut through the other mounting hole. Ensure that no wires are trapped under the spacers at either end or between the trimmer pot and its access in the bottom of the chassis, then tighten both screws from below. As they approach being tight, adjust the board so that it is parallel to the chassis.

☐ Insert the black ground wire coming from the back of the PC board into the solder terminal on the output hexagonal (RCA) connector. This will be the third wire to the solder terminal. Solder all three wires. Note: this connection requires more heat than other connections. **Take extra care to get a good connection.**

☐ Locate the wire coming from the "**+**" hole next to diode "D2" at the front of the board and bring it to the "**+**" connector of the black plastic power input jack. The "**+**" connector on the jack is the one with the largest "face". If you have any question at all, use your ohm meter to confirm continuity from the center pin of the connector to the terminal on the back. Also check the drawing on the prior page.

☐ Locate the wire coming from the "K" hole near the front of the board. Solder the other end to the center of the keyer output hexagonal (RCA) connector.

☐ Locate the two wires coming from the "SPKR" holes. Solder them to the two speaker terminals.

☐ Locate the two wires from the holes marked "DOT" and "DASH". Solder them to the matching terminals two terminals of the paddle input jack, per the illustration on the prior page.

☐ Remove the protective covering from the double-sided tape applied to the magnet of the speaker. Carefully position the battery holder over the exposed tape, but **do not** press it onto the tape yet. The battery holder should be positioned so that one end of it is very close to – but inside! – the chassis edge, and far enough toward the rear so that it is not covering the PC board at all. Press the battery holder down **gently**, make sure all is well, then press down firmly, and wiggle it to seat it.

☐ **Caution** – take proper static electricity precautions before the next two steps. Make sure you are grounded to a good earth ground before handling the IC chips. Remove the CPU from the protective foam. Ensure that the pins of the IC are straight up and down, *not* angled out at all. If they are angled out, hold the IC with **both** hands, place one set of pins against the work-surface, press downward and rock the IC body to bend all of the pins on one side inward until they are vertical. Repeat for the other side of the IC. **Caution** – make sure the end of the CPU with the notch lines up with the notch on the socket. The notch on the CPU should be immediately next the ceramic resonator. Set the IC on top of the socket, seeing that all pins are inserted into the socket and nowhere else. Press the IC into the 40-pin socket using **both** hands (thumbs on top of the IC and fingers beneath the PC board, squeezing from the bottom). Press firmly to get the chip well seated in its socket.

☐ Remove the 8-pin EEPROM from the protective foam, check its pins for straightness, and in the same manner insert it into the 8 pin socket. Caution – Note that the notch of this chip must also match the socket, **and** that it is aligned in the same direction as that of the CPU.

☐ Rotate the speed pot shaft on the front of the keyer fully clockwise. Place the knob over the shaft, align the pointer to about 5 o'clock and lightly tighten the set screw. Confirm that alignment is correct throughout the range. If the knob seems to “stick” anywhere, loosen the screw and pull the knob out slightly, retighten, and try the range again. Once it is operating freely, firmly tighten the set screw.

☐ Inspect the resistors standing up on the PC board, and make sure that none of them has leaned to the point that its lead is shorted to another resistor or other component.

☐ Slip the top cover of the keyer into place, easing it over the pushbuttons. Screw in the four side screws – 4-40 X 1/4" (6.4 mm), but do not over-tighten. See that the pushbutton caps line up nicely centered in their holes, and not binding against the edge of a hole. Once you are satisfied that the buttons are properly centered, tighten the screws underneath the chassis for the push-button board standoffs. If the pushbuttons are not properly aligned, make note of the error, remove the top cover, loosen the bottom screws holding the pushbutton board and re-align them slightly. If further adjustment is needed you can also loosen the screws holding the pushbutton board to the hex standoffs. When alignment is complete, tighten (But do not over-tighten!) the screws to the pushbutton board and the screws for the pushbutton board stand-offs.

☐ Invert the bottom chassis and apply the four black rubber feet to the corners of the chassis.

This completes assembly of your Logikit CMOS 4 keyer.

Testing

Your keyer can be powered either from three (3) AAA cells mounted in the battery holder, or from 12 volts supplied through the rear of the case, or both! (No current will be drawn from the batteries as long as 12 volts is applied.) For normal operation in a fixed station you will probably prefer both, since that allows you to take the keyer on any trips without having to open it to insert batteries. For most other forms of operation you will probably prefer to use the AAA cells – you will find that fresh cells will offer many months of normal operation before they muse be replaced, if they are the only source of power to the

keyer

Caution – Do **NOT** use a typical wall-mounted 12 volt DC supply – this will void the warranty! These supplies typically have no regulation and little or no DC filtering and can damage the keyer. Instead use a communications-grade 12 volt regulated DC supply such as you use to power a transceiver. Also, your transceiver may have a 12 volt accessory output on the back. That would make a fine source of power. (The keyer will never draw more than 60 mA of power if everything is working properly.)

Now, either insert the batteries, paying careful attention to getting their polarity right as per the outline drawing in the battery holder, or apply 12 volts through the power connector.

The keyer should send "OK" in Morse code, indicating it has successfully completed an initialization and self-test routine. If you do NOT get the "OK", try pressing buttons 1, 3 and 4 all down simultaneously and then release them. This causes a complete reset of the keyer, and often is all that is needed to get a keyer that did not start going again with an "OK". If everything is working OK, proceed to the Operating Manual and the Tutorial to learn how to use this marvelous keyer.

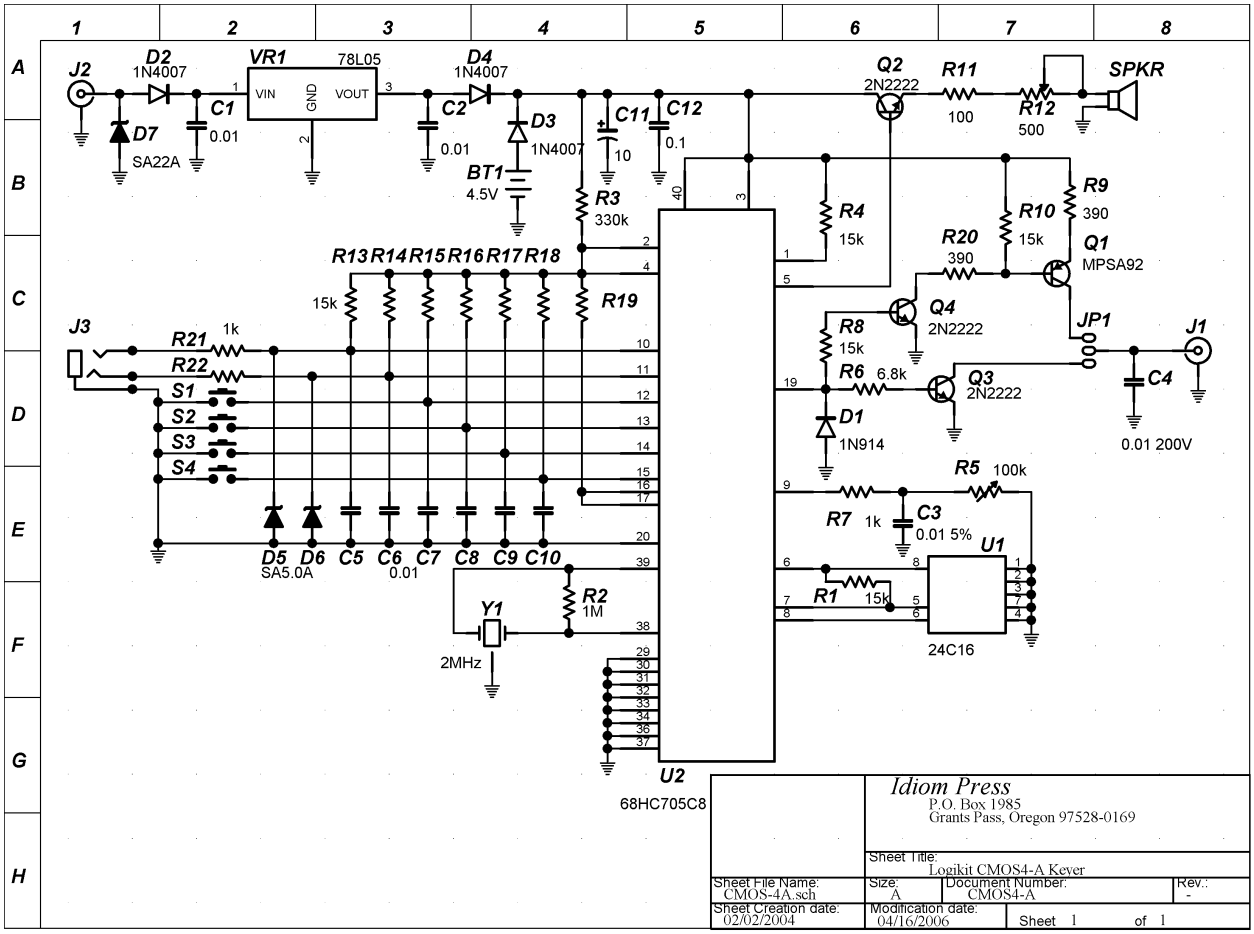
Troubleshooting

If the keyer does not send the "OK", check all wiring and part placement. Before proceeding further, confirm that all pins of the IC chips are plugged in and that the ICs are correctly orientated in their sockets. Check that all transistor bodies conform to the silk-screen legend on the PC board. Make sure that none of the standing resistors has leaned so that its lead is shorted to another resistor. Then, check voltages. Put the + probe of your volt meter on pin #40 of the CPU. Pin 40 is at the resonator end of the CPU, opposite from the molded dot. You should find a voltage between 4 and 5.1 volts. If the voltage is not present troubleshoot the power input portion of the circuit – including checking the batteries if used. If voltage is present but there is no sign of life, remove power by unplugging, or by removing one cell from the battery pack. Check resistance across the R5 speed pot pins on the circuit board. You should get a reading between 0 Ωs and 100,000 Ωs. If you get an infinite resistance, the keyer will not work.

Experience has shown that builders who experience failure in getting their kit to work almost always blame the CPU. While of course this is always a possibility, you should know that CPU's are checked 100% prior to shipment, and that CPU problems are responsible for less than 1% of failures.

If you still have no sign of life, it is quite possible that the keyer is working but that the audio portion of the circuit is not. Check the audio driver transistor and connections to the speaker. If the keyer sends “OK” in Morse code and then goes “key down” this is a sign that one or more of the 15K resistors is not in circuit – check the connections carefully.

If you are still unable to get the keyer going, contact Idiom Press by e-mail at info@idiompress.com for further consultation or instructions for sending the keyer in for repair service.



Note: For Negative keyed rigs, the internal jumper goes to the outside two pins of the header; for solid state rigs use the two inside pins of the three pin header.

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