

KG6CYN DDS Signal Generator/VFO

Assembly and Operating Instructions v1.5 01-06-2004



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CPU Board Assembly

Surface mount resistors:

Install the following

[]	R1	10 K	size 1206
[]	R2	4.7 K	size 1206
[]	R3	4.7 K	size 1206
[]	R4	4.7 K	size 1206
[]	R5	4.7 K	size 1206
[]	R6	6.8 W	size 1206

Surface mount capacitors:

Install the following

[]	C1	22 pF	size 1206
[]	C2	22 pF	size 1206
[]	C6	0.1 mF	size 1206
[]	C7	0.1 mF	size 1206
[]	C4	0.01 mF	size 1206
[]	C5	0.01 mF	size 1206

Electrolytic capacitors:

Install the following

Observe polarity - a "+" is marked on the circuit

[]	C3	10 mF	25 V, radial
[]	C8	10 mF	25 V, radial
[]	C9	10 mF	25 V, radial

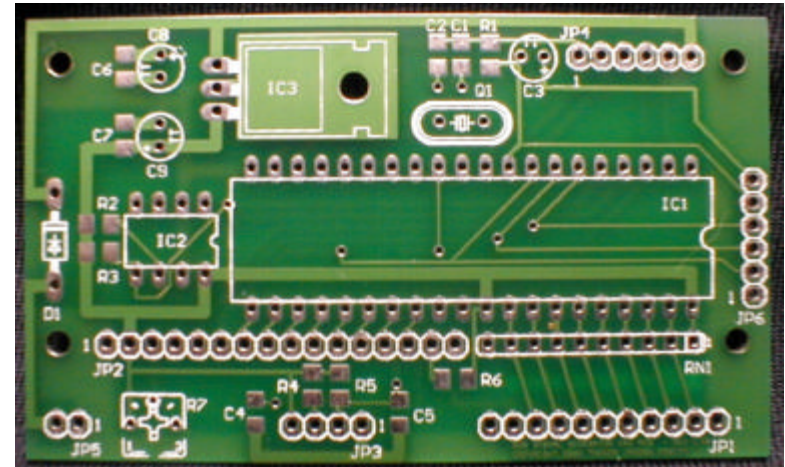


Figure 1. Unpopulated CPU Board

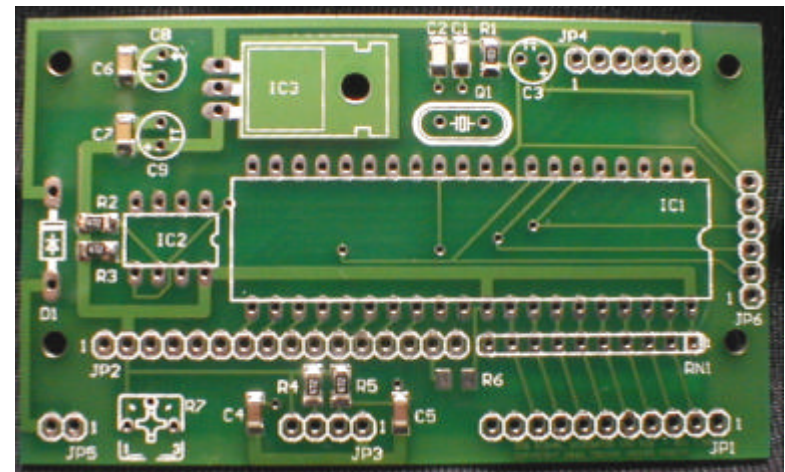


Figure 2. CPU board after surface mount components have been installed (except R6, and inadvertent omission).

Miscellaneous components:

Install the following

- | | | |
|-----|--------------|---|
| [] | RN19 x 4.7 K | SIP resistor network, observe the orientation of pin 1, marked with a dot.
(note: the original parts list calls this RN2, revised parts list is corrected) |
| [] | R7 10 K | trimmer potentiometer. Trim excess lead length after soldering |
| [] | Q1 16 MHz | HC49US crystal |
| [] | IC3 7805 | TO-220 +5 V regulator. Bend the leads at a point about 3 mm from the body of the part, then secure it to the board with a #4-40 nylon machine screw and nut.. |
| [] | D1 1N4004 | Silicon diode. Orient the banded end as shown on the circuit board outline |

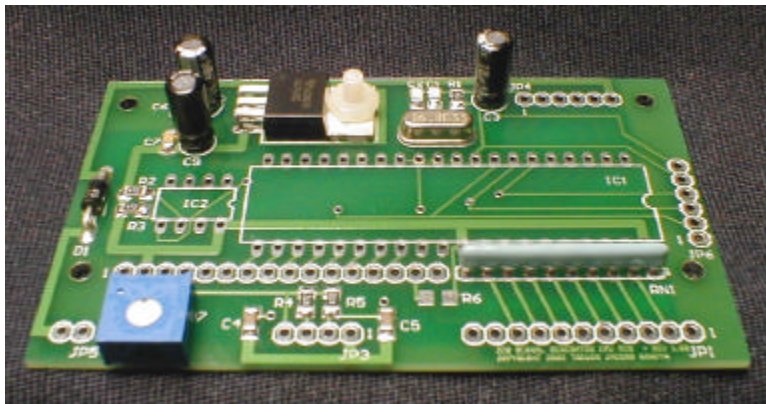


Figure 3. Front view of CPU board after through-hole components have been installed. (R6 still missing - an error)

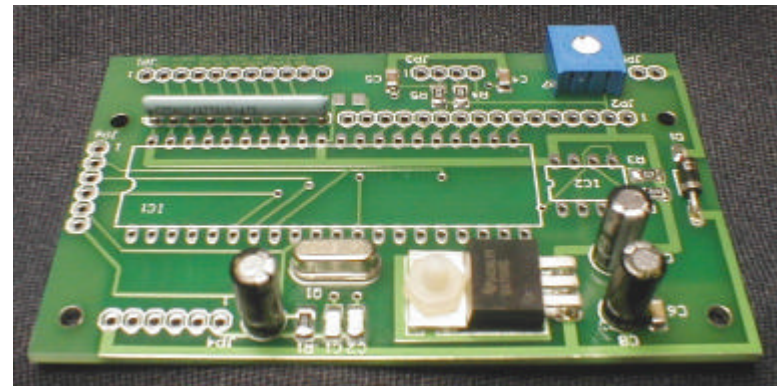


Figure 4. Rear view of CPU board after through-hole components have been installed. (R6 still missing -an error)

Connectors and Sockets::

Install the following (See Figure 5)

- [] IC2 8-pin DIP IC socket, orient the notch in the end of the socket according to the outline on the circuit board
- [] IC1 40-pin DIP IC socket, orient the notch in the end of the socket according to the outline on the circuit board

The header connectors as specified in the parts list are all supplied as 36-pin sections. It will be necessary to cut off sections having the appropriate numbers of pins.

For the female connectors, one of the most reliable methods is to use a hobby knife, or hobby saw, and make cuts directly over a pin (one pin past the last one you need, please!) on both sides of the connector. Gently snap off the desired section, and dress the cut end with a file or emery board. Male connectors can easily be cut with a hobby knife in between pins.

Install the following (See Figure 5)

- [] JP2 16-pin single in-line **female** header connector, install on TOP of board
- [] JP5 2-pin single in-line **male** header connector, install on TOP of board, long pins UP
- [] JP3 4-pin single in-line **male** header connector, install on TOP of board, long pins UP
- [] JP1 11-pin single in-line **male** header connector, install on TOP of board, long pins UP
- [] JP6 6-pin single in-line RIGHT-ANGLE **male** header connector, install on TOP of board, with long pins oriented AWAY from board
- [] JP4 6-pin single in-line **female** header connector, install on **BOTTOM** of board (See Figure 6)

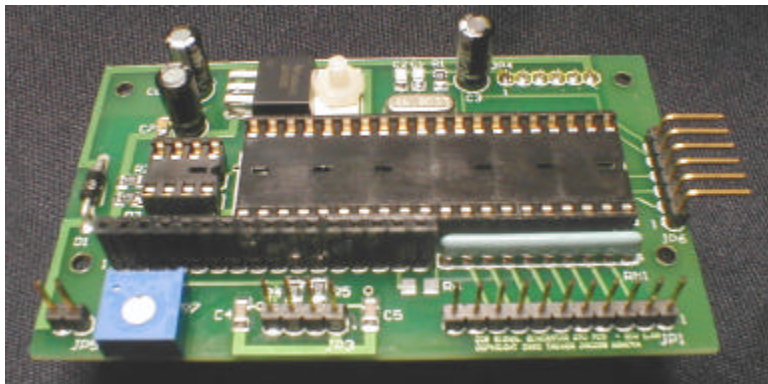


Figure 5. Top view of CPU board after sockets and connectors have been installed. (R6 still missing - an error)

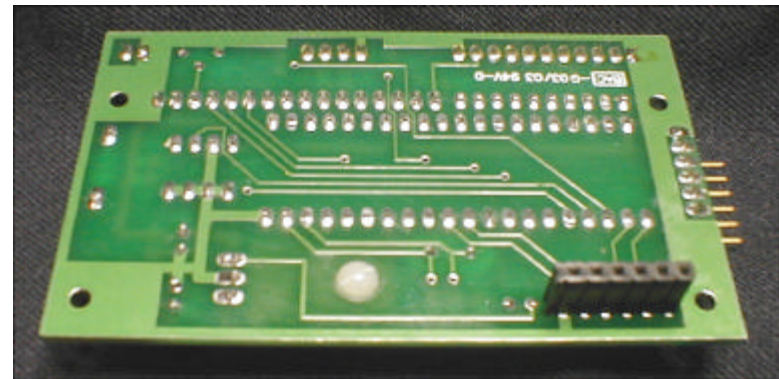


Figure 6. Bottom view of CPU board showing JP4 installed.

LCD Display Board Assembly

The LCD display may have a strip of clear protective film over the display window. If so, leave it in place until just before the display is mounted into an enclosure.

Cut off 16 pins of the single in-line, male header connector that has the extra long pins. Install this connector on the BOTTOM of the LCD display board by inserting the shorter pins into the holes marked 17 through 32. Holes 1 through 16 will not be used. See Fig. 7 for correct orientation. Be very sure that the connector is fully seated onto the board and that the pins are perpendicular to the board. Tack solder a pin at one end and check alignment before soldering the remaining pins.

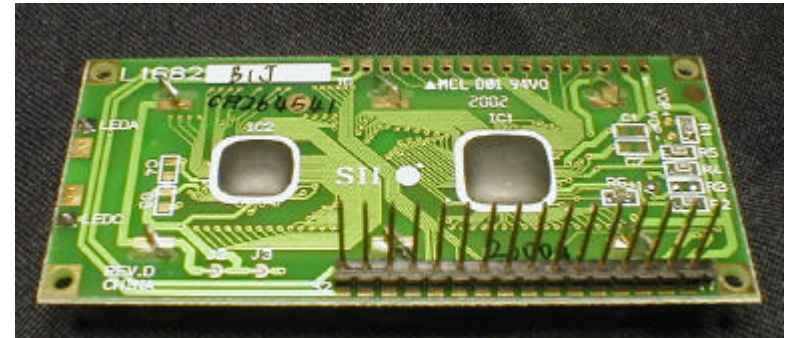


Figure 7. Bottom view of display LCD panel showing header connector that mates with JP2 on the CPU board.

This completes the assembly of the CPU board and display. The CPU and display may be tested prior to assembly of the DDS board. It will be necessary to prepare cables for power, the rotary encoder, and two pushbutton switches. Proceed to the Mechanical Assembly section, and then to Initial Power-Up Testing if desired.