

# THE C TEAM

## UPDATE: WIDEBANDING MODIFICATION UHIC-005 VCO CHIP

by J.S.

"This modification does work; (Reference SCB #24, Pg. 26); but it is definitely a hit or miss proposition" ...Editor - 'I know as messed up two VCO chips myself \$\$\$\$'. I sent the chips to a person who works in this area and one of these was successfully modified.

Below is how it was done. NOTE: The CT-1 diode is available from Selman Enterprises in very limited quantities.

### THIS MODIFICATION REQUIRES THE RIGHT TOOLS AND MUCHO PATIENCE!!!

The UHIC-005 is a thick film I.C. Gold circuit paths are silkscreened on a ceramic substrate. These paths are less than .001" thick. Micro-miniature components are bonded onto the substrate with conductive epoxy. These components can be removed and changed; IF YOU KNOW WHAT YOU'RE DOING. Otherwise, you'll end up with some very expensive junk.

If you want to try this modification yourself, get the following tools and parts together:

1. A fixture to hold the UHIC-005 securely.
2. A good quality microscope, or a high power jeweler's eyepiece.
3. A set of jeweler's files or a Dremel tool with a 1/32" ball and mill.
4. High silver content 2-part conductive epoxy, (Ablestick 88-1, or equivalent).
5. UHIC-005 VCO and CT-1 diode.

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### PROCEDURE

Before starting, remember that if you want to do this modification successfully, you MUST EXERCISE EXTREME PATIENCE. After you've done 2 or 3 units, it will be easier, but start slow..... A word to the wise.....

1. Place VCO chip in fixture (number side down) and locate varactor diode. See SCB Vol. 24, pg. 26 for all drawings as to location.

VERY VERY CAREFULLY, use the jeweler's files to file/scrape/remove the epoxy coating from around the diode. Be extremely careful not to cut into the ceramic substrate as it is very easy to sever a circuit path and render the device unuseable.

Examine the diode, and CAREFULLY remove as much of the conductive epoxy from around the ends of the diode as possible.

Now come the hard part! The diode must be removed by fracturing the epoxy bond between the substrate and the diode. I usually use a small set of pliers and break it off with a slight rocking motion. It can also be pried up with an Xacto or scribe. Use whatever method feels most comfortable to you. The diode is expendable, and the bottom line is to get it out of there without causing any other damage. GOOD LUCK!

Once the diode is removed, use the files or an Xacto to scrape the gold mounting pads clean.

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UPDATE: UHIC-005 ....(Cont.)....

2. Bend and cut the leads on the replacement diode to fit the mounting pads. Use a tooth pick to apply a small drop of epoxy to each pad and put the diode in place (observe polarity). Use the toothpick to make certain that the epoxy makes good contact with the diode leads.

Place the chip and fixture in a preheated oven (150 degrees F.) for about an hour. Let cool and test.

If unit tests good, cover new diode with a two-part hard epoxy or RTV as a moisture barrier.

Reinstall modified UHIC-005 in PC Board, and enjoy.....

## PALOMAR FC-40

### POWER SUPPLY SCHEMATIC

