

# **KUN002 - BATTERY REPLACEMENT INSTRUCTIONS**

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## **Disclaimer**

The information contained in the document is, to the best of my knowledge, correct as of May 29, 2007. It is supplied free as a public service to Kachina 505DSP owners. However, it is up to the reader/user to determine for themselves whether to apply any ideas or suggestions contained herein. The writer of this document is not responsible for any results, good or bad, from following the information or advice in this document. That responsibility remains solely with the reader. Therefore, if damage should result as a result of applying any information in this document, it is your fault, not mine.

## **Cautions**

**NOTE:** Before proceeding with the instructions contained herein it should be noted that I replaced the BT-401 battery without using a voltage source, Vstby, as a backup for the microprocessor SRAM during the battery swap. If you choose to follow the directions contained within you will possibly loose, or have scrambled, the stored SRAM information also. It will be necessary to replace that data for the 505DSP to function properly. In the future there may be a way to circumvent this little inconvenience, so stand by. However, if you proceed following these directions, it is at your own risk.

## **Replacement Instructions**

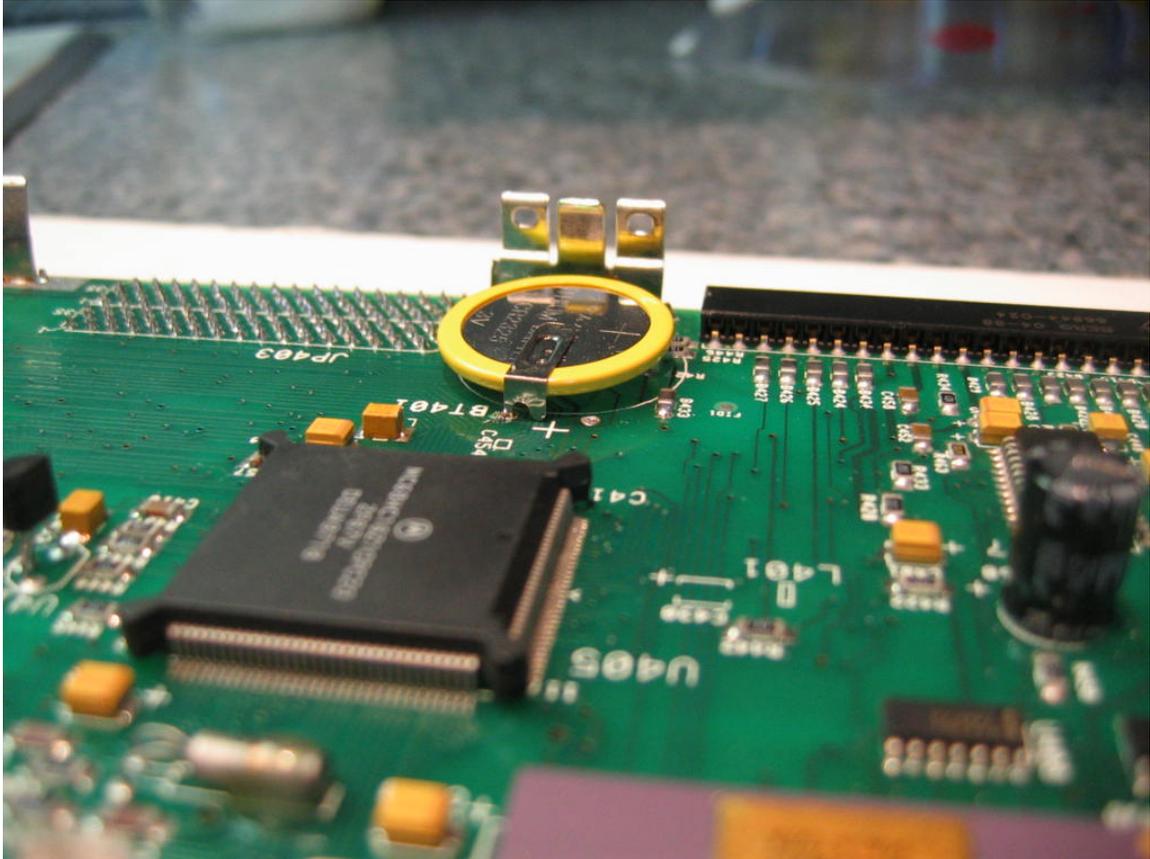
Replacing the battery of the Kachina 505DSP located on the PC-401 PCB is a fairly straightforward procedure for a person who has some experience at the techniques of soldering and unsoldering.

Whenever I need to remove the outer case of the 505DSP, I automatically follow the ESD procedures drummed into me over the years being in the aerospace industry.

I have an ESD mat and wrist strap, which is grounded to a point at my workbench where the 505 is going to be worked on.

If this procedure cannot be followed please use one where you ground yourself to the radio first, depleting any static buildup between you and the radio and eventually the PCB, which you are removing. This is a common sense approach that should be followed to eliminate any static buildup and shock to the sensitive devices within the radio. This procedure should prevent any latent failures from occurring later on.

The battery, BT-401 is located on the component side of the PC-401 PCB on the edge near the socket connectors and opposite the PCMCIA card slot.



**Figure 1** – Battery location on PC-401 PCB Assembly

The battery is a 3 volt Lithium coin type, BR2325, with a three pin-mounting configuration. The mounting pins are welded to the battery body with one on the negative side and two on the positive side whose pin spacing is used to bridge PC runs on the board assembly.

The battery I used as a replacement had a total of only two pins, part number UL2325PCPINS, made by UltraLast and sold as a Computer Battery at my local Micro Center computer outlet, which has 20 locations Nationwide.



**Figure 2 – Pin spacing details**

Reviewing the Mouser catalog I was able to find a replacement battery, part number: 658-BR2325-XYZ, where XYZ is the mounting configuration you desire. Please check their catalog to confirm the pin spacing. It should be either 1HG or 1HC.

To access the battery within the 505DSP first remove all DC voltages and connections from the 505DSP.

Remove the six sheet metal screws located on the sides of the radio housing cover. With all screws removed, gently slide the cover towards the rear, being careful not to snag or move the blue coax cable running over the second PCB within.

The first PCB, towards the front, which has the PCMCIA slot, is the PC-401 PCB, and houses battery, BT-401.

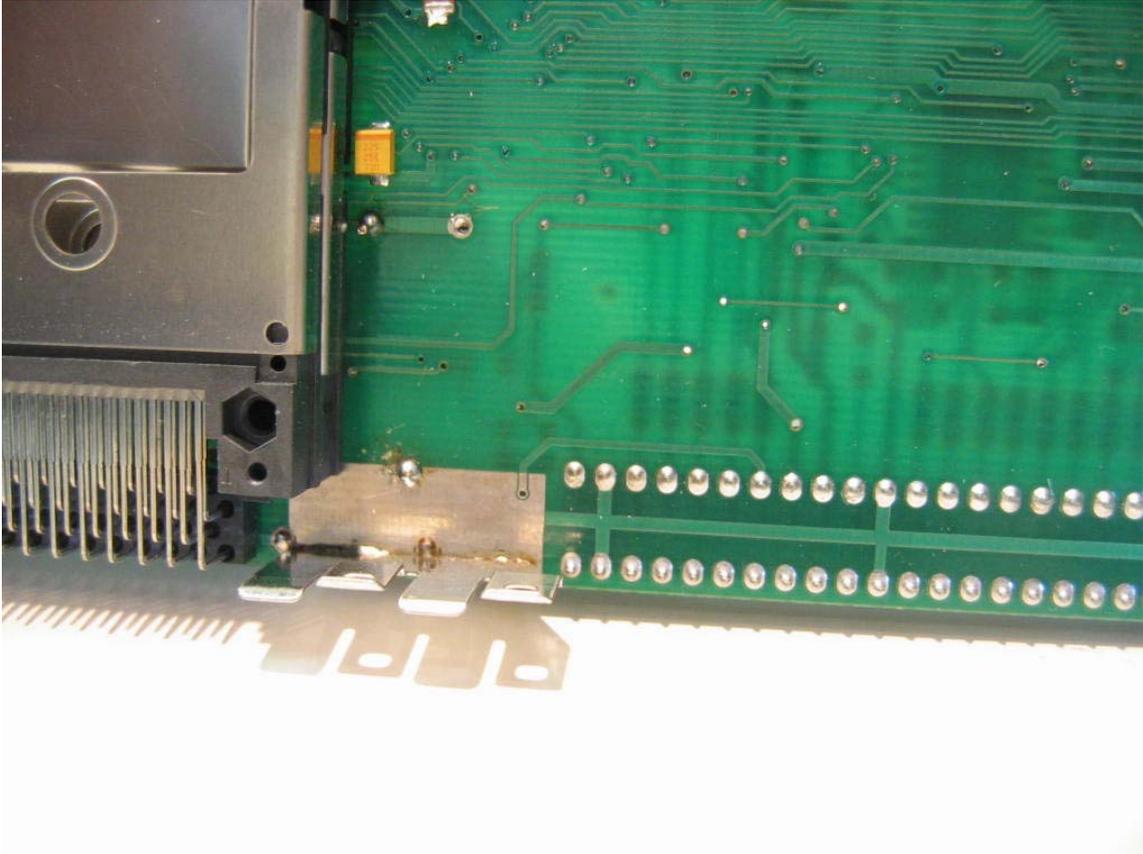
Remove this PCB gently as it is connected to the motherboard via two multi pin connectors. There are card guides on the radio chassis at the ends of the PCB insuring correct alignment during installation and removal for proper positioning to the mating connectors.

Once the PCB is removed, both covers can now be carefully removed from the finger stock, providing full access to both sides of the PCB for battery removal.

Using a 60-watt pencil soldering iron, such as the Weller TC202, as an example, heat and clean the tip in preparation for battery pin unsoldering.

Again, following ESD procedures with the soldering iron, ground the tip to the chassis prior to touching the battery pins. You do not want any static buildup on the soldering iron tip since the positive side of the battery goes directly to the microprocessor “Vstby” pin.

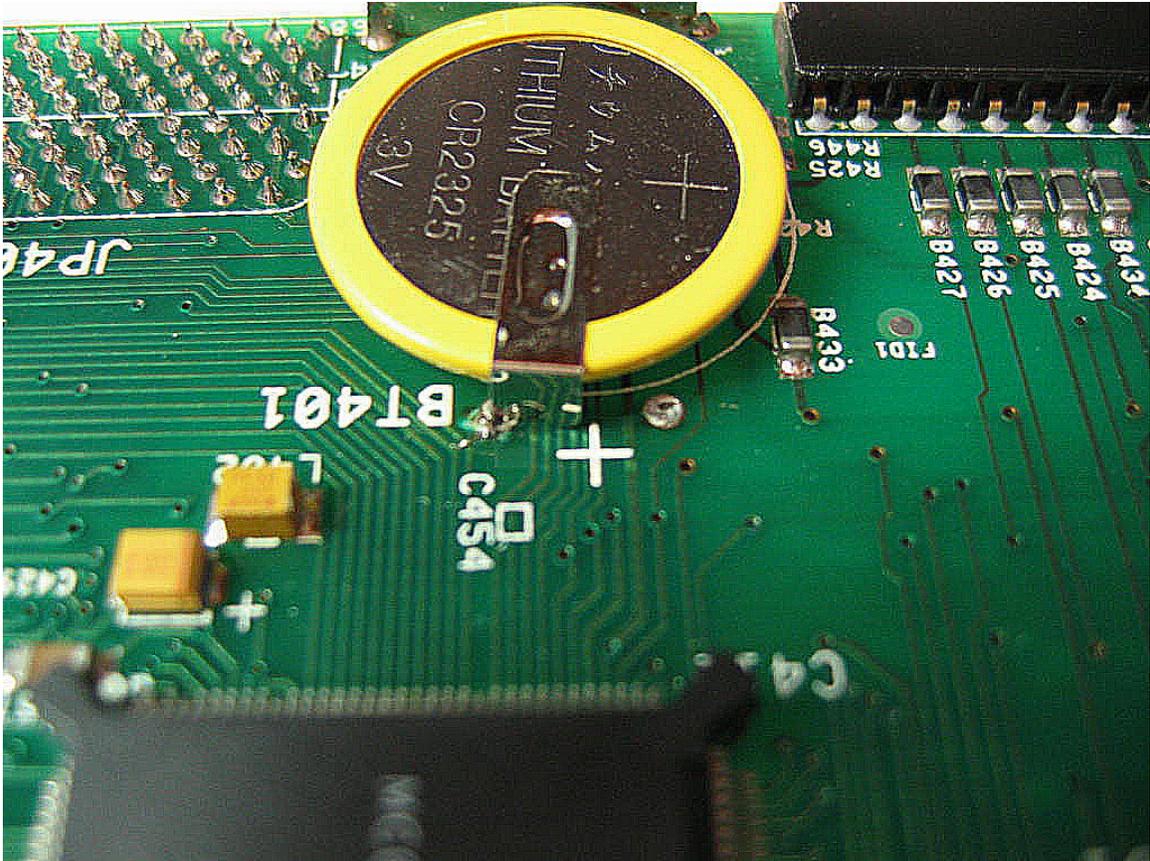
First, heat the negative battery pin on the board side, opposite side of the battery, while simultaneously applying pressure between the battery and board so the battery will pull out of the PCB mounting hole as it is heated up.



**Figure 3** – PCB bottom side showing battery solder hole locations

Duplicate the above procedure on the positive side until the two pins are out of their respective mounting holes.

Once you have the replacement battery in hand, installing it is simply reversing the procedure followed above while observing that the battery polarity is positioned correctly.



**Figure 4 – Battery installed**

With the battery installed, reinstall both covers on the PCB insuring that they are correctly orientated and positioned into the finger stock and not shorting any components on the PCB.

Install the PCB in the chassis observing the alignment guides mentioned previously to properly align the PCB to the mating connectors on the motherboard. The PCMCIA slot is located on the right side as viewed from the front of the radio chassis.

With the PC-401 PCB assembly installed, slide the radio cover, starting from the chassis rear, slowly forward watching that you do not snag the blue coax cable, until it is fully engaged. Install the six

screws and you have now completed the battery replacement procedure for the Kachina 505DSP, and are now ready for the final install notes that follow.

**Final Installation Notes:**

It will now be required to re-read KUN001 and follow the instructions within, using the correct diagnostic program(s), to reinstall the SRAM data files that were either lost or scrambled as a result of this process.