

PROCEDURE OF MOUNTING ADDITIONAL FILTER CAPACITOR for ETHERNET BOARD **VERSION 1.1**

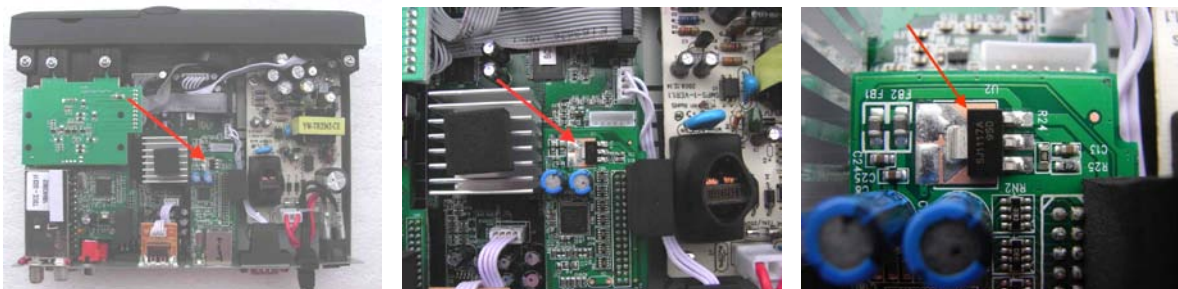
To avoid the problem of stop communication via ETHERNET (X403, XC403)

Problem description

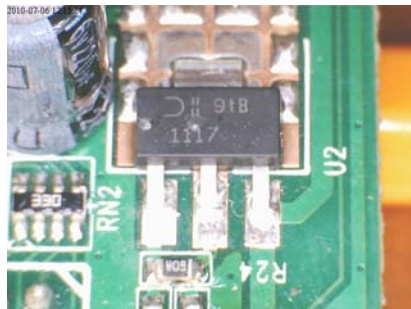
Problem appears when U1 – Ethernet chip get to high temperature. For testing environment I used HOT AIR to increase U1 temperature (temperature set to 200°C) and oscilloscope to analyze output from U2 (middle pin or radiator). After while of heating, oscilloscope shows high frequency sinus oscillations (set to AC coupling, Y:10mV/div and X:2μS/div). This causes stop communication via Ethernet.

Location of problematic point

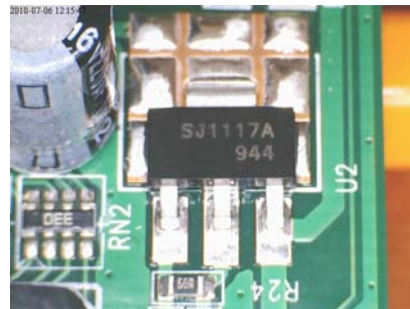
Located on the centre of motherboard there's Ethernet adaptor card with U2 component - LDO voltage regulator:



Two kind of components were mounted:



Picture 1 – good component



Picture 2 – bad component

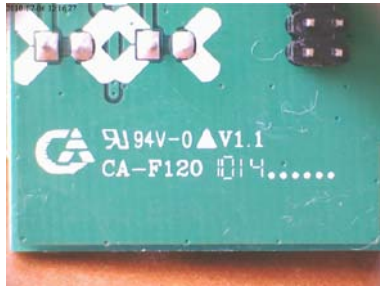
Until now we got 4 releases of Ethernet board versions. IC from picture 1 were mounted on PCB from picture 3 (0952). IC from picture 2 was mounted on PCB from picture 4,5,6 (1010, 1014 and 1017). **WE REPORTED THIS PROBLEM ONLY WITH CHIP FROM PHOTO 2 (MOUNTED ON BOARDS 1010, 1014 1017).**



Picture 3



Picture 4

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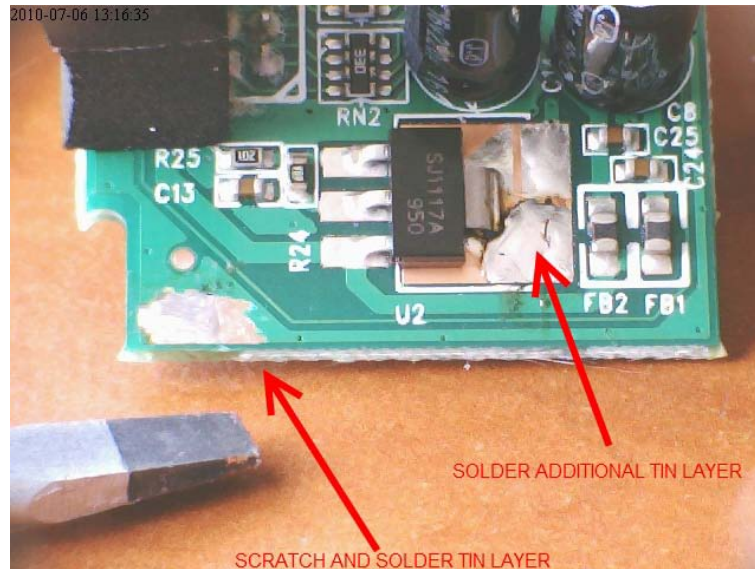
Picture 5



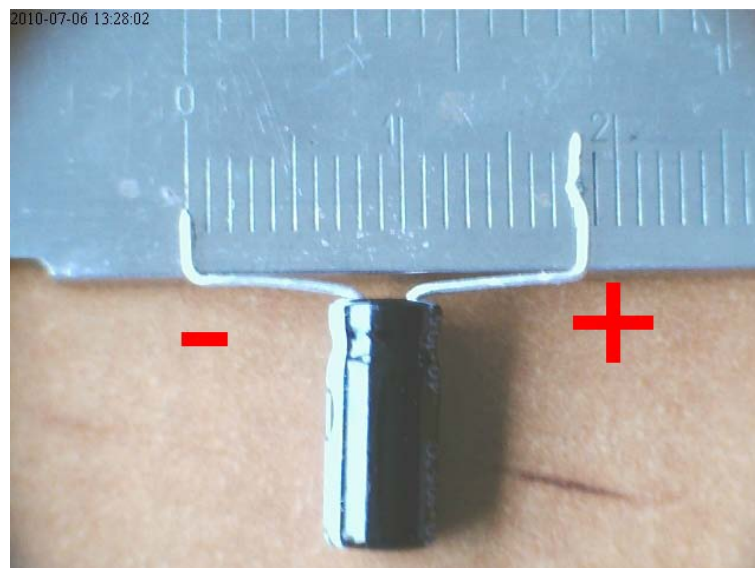
Picture 6

Patch procedure

Problem disappears when additional filtering electrolyte capacitor (we used **100 μ F/16V 105°** - **capacity is critical and should not be replaced by smaller one!**) is connected between output of voltage regulator and ground. Because there's no sure ground point around U2, remove varnish from cooper at PCB corner. (See below picture).

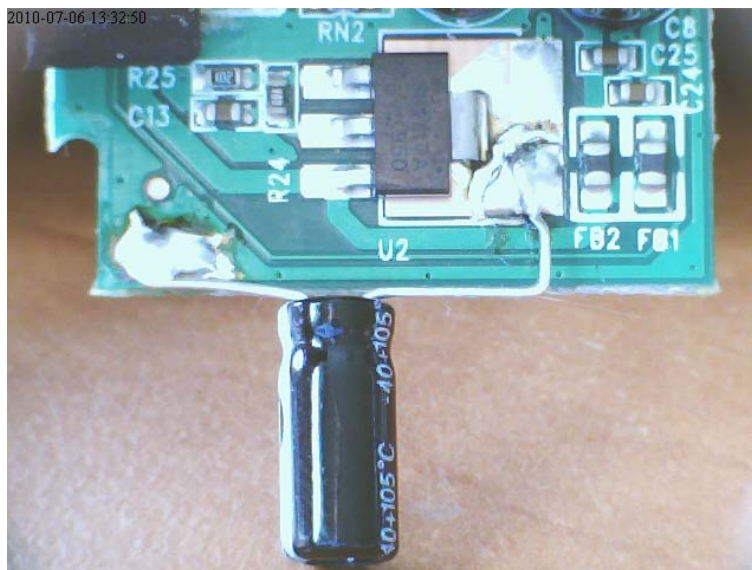


Prepare capacitor:

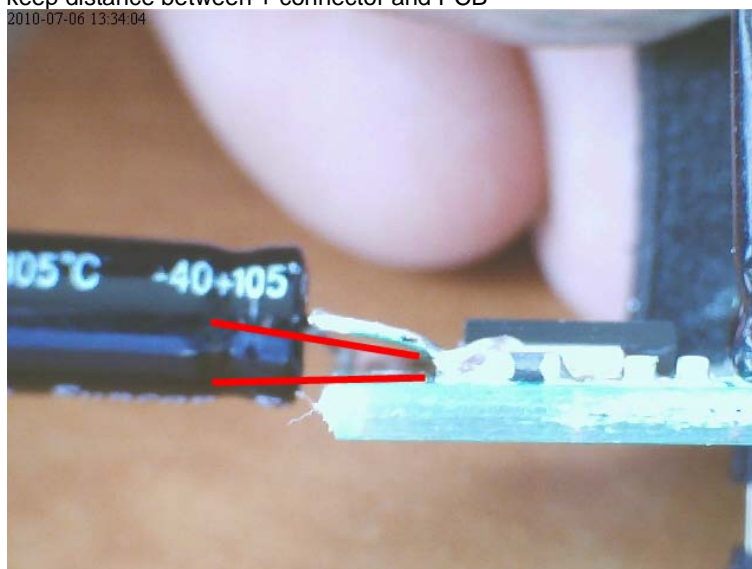
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Solder capacitor:



To avoid short circuit keep distance between + connector and PCB

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