



## fixe main VFO autoscanning down fault

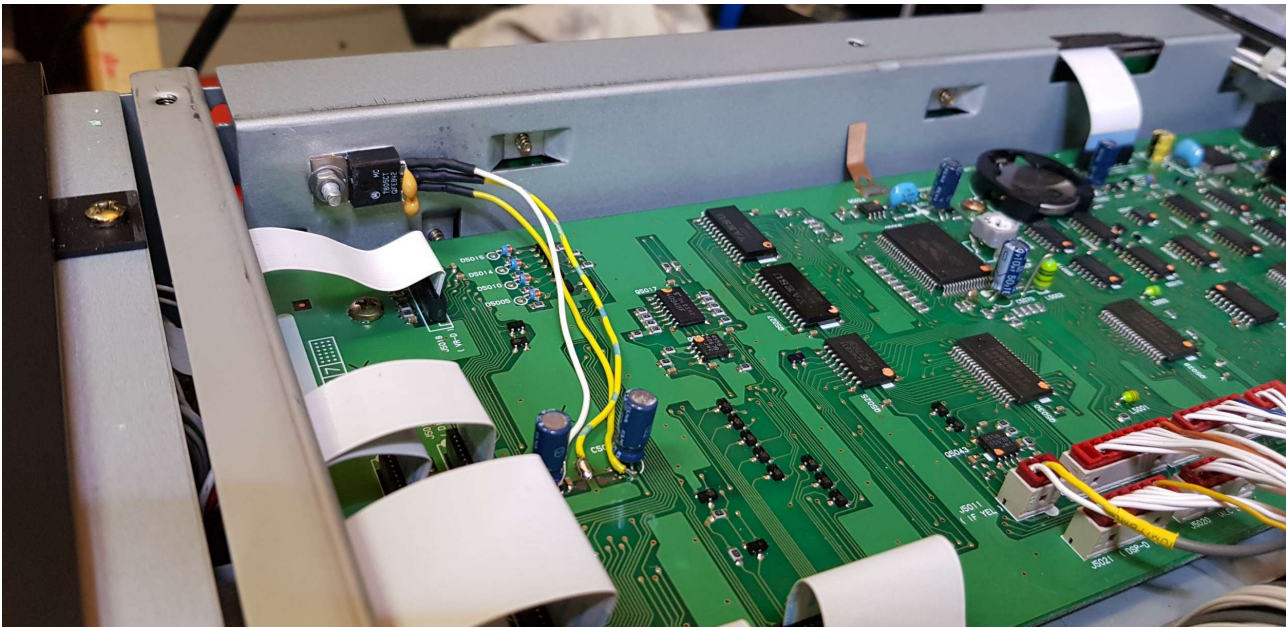
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Hi all

I have a FT1000 MP MKV field O brought new, around 2008. The rig was running a lot during all this years without any problem. In last year, sometimes, the scanning starting go down without any apparent reason. I tried to find in the internet forums, a reference to this fault, but I just found only one reference to this rare fault but without any conclusive answer. So I starting investigate the fault to solve it.

I was read that the shuttler Jog can make this fault due the mechanical unbalance of the system. It was not my case. The shuttler jog gear was perfect and centered. In other hand, the fault was not constant. It was an intermitent problem. In the schematic diagram is hard to find and follow the shuttle circuit. With a lot of pacience I can find the shuttle jog in the circuit diagram! It is a 100K linear planar potentiometer named VR1 STL and is connected to the the J5519 connector in the display board. The display board have not any function on this circuit! It only goes trought the display board and go to the output J5518, pins 1-2-3. This pins from J5518 than go to the control unit board to J5017, pin 10.11.12. In the control board I investigate how the circuit works. First the shuttle jog potenciometer need feed with a very stable 5V voltage. This voltage is than divided in potentiometer that when centered have in cursor around 2,25V This voltage is than applied to the pin 12 of Q5036, MC14053 analogue multiplexer/demultiplexer. In my radio, when the voltage down 2,14V the scanning starting down, and when it is over 2,35V the scanning starting up. This differential is done buy moving the cursor of the shuttle jog 100K potentiometer. When I have the fault, I find that moving a litle the cursor of VR1 STL, the scanning stop. but the cursor is off-center. I find that the output voltage is the same 2,25V in off-center. Something was wrong with this voltage!!! when I desconnect the radio wait a moment a connect again the radio, the voltage shift and need put the potenciometer to center to return normal operation. This is signal that the 5V are not stable! So I started to investigate the 5V supply. This voltage comes from a inboard 5V 100mA SMD regulator Q5058, MJ78L05UA. This regulator heats up a lot! with the years and the hot maybe lost the feature. At some point, the over-temperatur protection act and the voltage drop. This change the 2,25 reference voltage in the pin 12 of the Q5036 and starting scanning down. When I desconnect the radio this regulator cooling, and when starting all it`s normal for a few minuts.

The cure for this fault is change this regulator by a decent 5V TO220V regulator screwed to the chassi for decent cooling as you can see in the photo attached. I have done this modification and haven`t no more the fault.



Best 73 from CT4RK

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