

ICOM IC-7300 LOW SSB POWER MODIFICATION

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If You are owner of 7300 this MOD should make You more happy looking on your small Icom 7300, not to mention about saving your throat screaming loud to get more than 30W on SSB.

Quite dissapointing serious factory fooling their users saying that screwed ALC unit is made to comply with the high standards of spectrum purity and A class signal.

So what about their other radios, i.e 746, 756 or any PRO series? Are they piece of Sh!&^ and should not be used? Kind of bullshit IMO.

At this point I need to pass my sincere KUDOS to Marios SV0CL for his priceless hints, discussion and help.

Here's a solution - SSB power increase MOD, born after long hours spent on examining schematic diagrams, comparing circuit details and ham radio cooperation.

Likewise as in IC-7100 low SSB power (but not only SSB - i.e FSK441 and JT6M also are affected) it's the problem of too sharp ALC limiting, making the ALC loop acting too fast to let the signal envelope to rise enough. And it's not the matter of MIC gain setting nor PROC value. As You probably seen on the video posted in December difference in average SSB power is HUGE at first sight.

Take note that MIC gain and PROC settings after modification remains in LOW range comparing to this what we can find on various websites concerning low power on SSB, and we are still within 75% of ALC scale! **Doing MIC gain at 90% and PROC at 6 can cause only screwing signal on the air and sort of splatter around.**

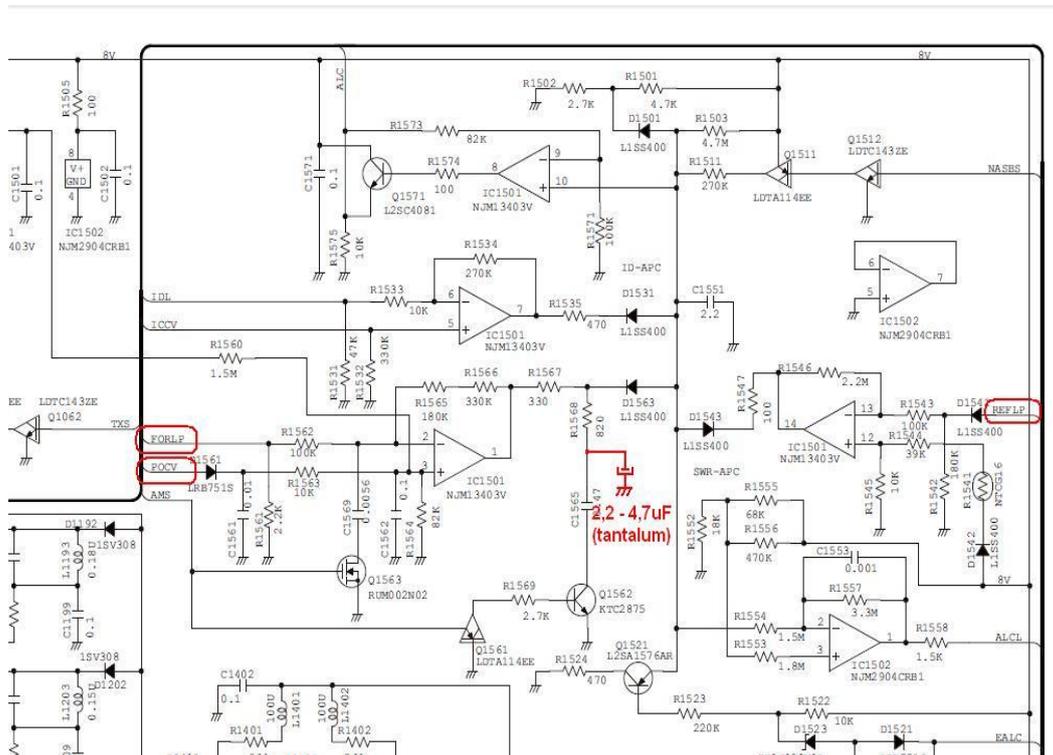
WARNING :

Any mistake can cause serious damage to your radio. So if You are not experienced in SMD soldering or using soldering iron at very FRAGILE enviroment - do not try to perform the operation! I will be not responsible for any damage You can make doing the MOD.

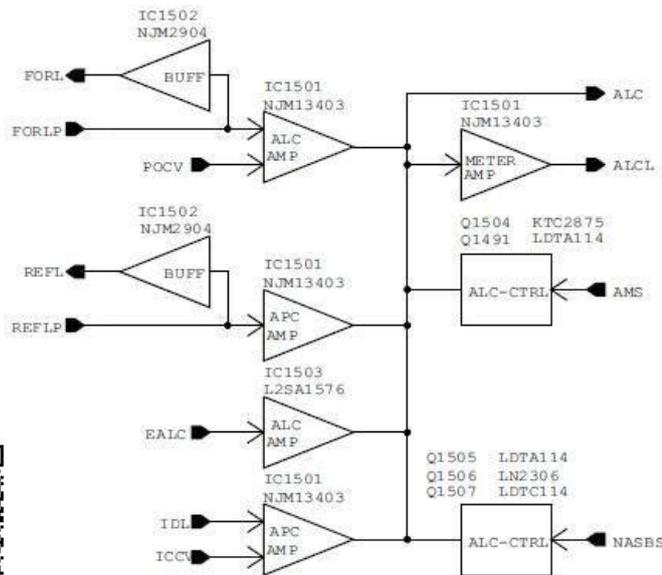
We need to prepare tantallum capacitor, magnifying glasses, and a value of 2,2-4,7uF /16V will do the job for us. The bigger capacitance, the slower ALC rise time.

Test proved that 3,3uF works well and could be optimal solution, but 4,7uF will be good as well. Various tests proved that we may use ordinary electrolytic capacitor also.

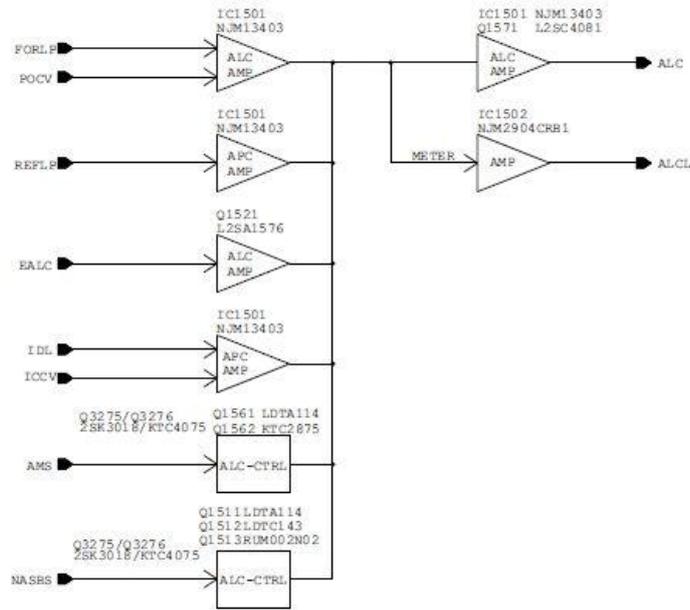
This time we need to add the ALC slowdown capacitor here :



Although 7300 unit is almost the same as 7100, we can see few small changes, mainly in component values. Apart of on MOSFET transistor added (changed vs 7100) there's no major difference in the ALC UNIT. Let's take look at IC-7100 ALC unit :



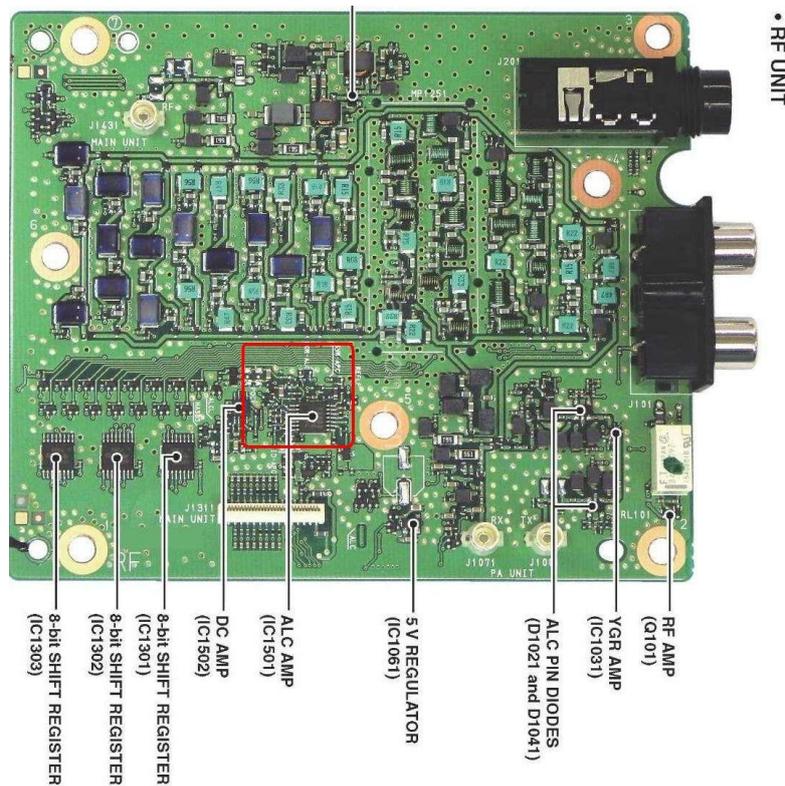
And IC-7300 ALC :



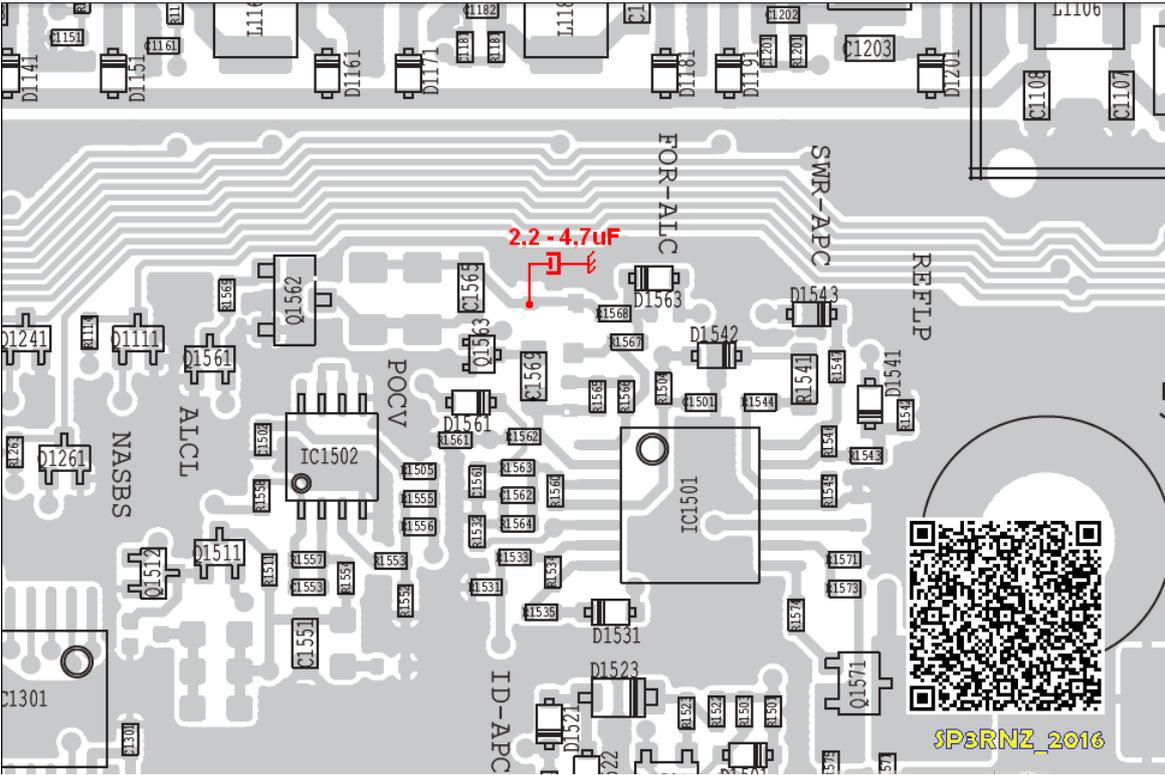
RF UNIT

Open your 7300 removing both covers, and face the radio left side to You. Having speaker on the right hand, on the left You will see RF UNIT. This is the place we will work. Take very good magnifying glasses, we will solder our capacitor between VERY small SMD elements.

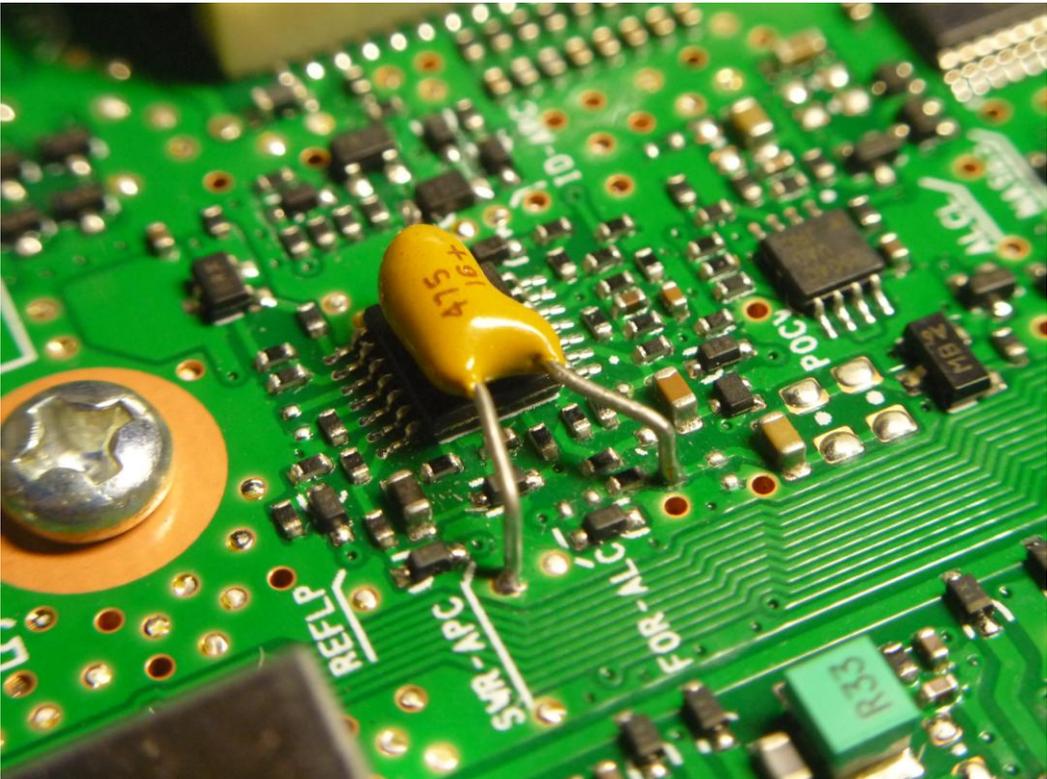
Look at the MAIN unit and locate region marked RED:



Closer look at PCB :



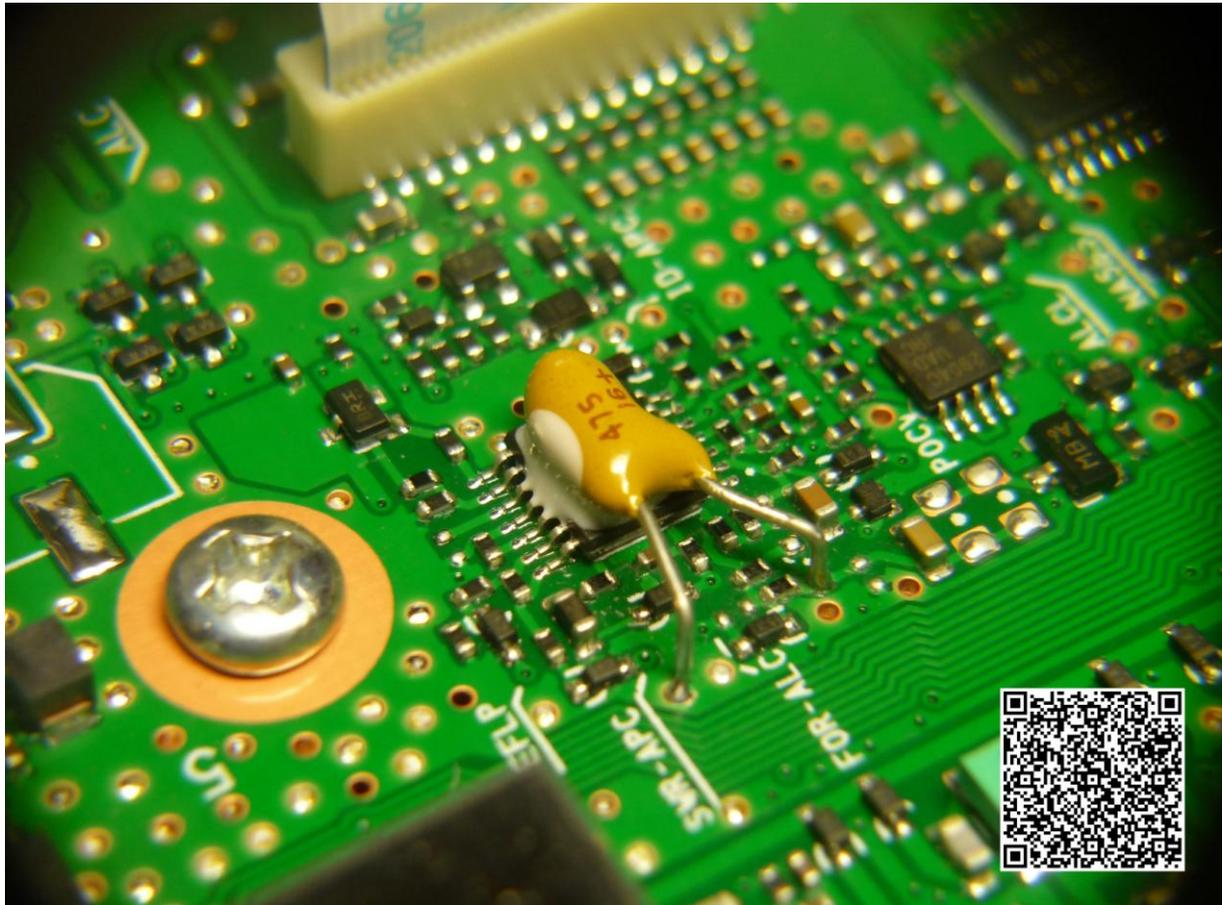
Gently bend the legs of capacitor at desired angle, and try if they fit between the soldering points between elements before soldering.
And this is how it's look after adding the capacitor:



After soldering check the surface against any short circuit around tiny traces.

Don't forget to clean the surface with amount of IPA alcohol or similar stuff and secure the capacitor to the top of IC1501 with small piece of double sided adhesive tape, or single drop of nail enamel borrowed from your girlfriend or wife :-)

Final look :



Good luck with the mod. If You feel You can't do the mod yourself, better ask a friend. Of course You can send the radio here, I'll do it for You.

NOTE:

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THANK YOU.