Mods for Tyt MD-9600 by Colin Durbridge

Colin Durbridge *til* **TYT MD-9600 Analog/DMR Radio**

6 min ·

Pop reduction Mod...

Having found a schematic for the TYT th-9800, which appears to use the same or similar audio amp circuit, I decided to have a look at the loud pop on squelch close. The TH-9800 circuit suggests that the input pin of the audio amp is being connected to ground when muted. Measurements on the MD-9600 showed that it was also happening on this radio.

The datasheet for the LA4425A audio amp IC shows that the input should always be AC coupled with a capacitor and has a bias voltage of 1.4V on it. Grounding this pin is likely to mess up the internal biasing of the IC. Hence the loud pop.

Unfortunately the PCB layout of the 9600 appears to place the muting circuit on the reverse side of the board so it is not accessible without removing the main board which I didn't want to do at present.

So I decided to try adding an additional AC coupling capacitor to the audio amp input pin. This allows the DC bias to remain correct in the muted condition.

The result was very good. The loud pop on FM squelch close has gone almost completely. The loud pop on DMR is greatly reduced. There is still a slight click but it is much less annoying. The muting still appears to work fine with no detectable sound when muted. The audio quality and volume appear to be unaffected.

⚠️If you want to do this mod be warned, it is quite fiddly to do and there is the slight risk of damaging the audio amp chip input pin. As with all mods you attempt it at your own risk.⚠️

Locate the audio Amp IC which is bolted to the heatsink at the rear left hand corner of the main board.
This chip has 5 pins. The input pin is number 1 which is the one furthest from the outside of the radio.

Carefully cut this pin in half with a pair of small sidecutters leaving about the same amount of pin sticking out of the IC as is sticking out of the PCB.

Slightly bend the pin to create a gap between the two halves.

Solder a 0.1uF disc ceramic capacitor across the gap. This last part is quite fiddly and needs a small soldering iron and a very steady hand.

It would be better to do this mod on the reverse side of the board, but this would involve a lot of dismantling of the radio.

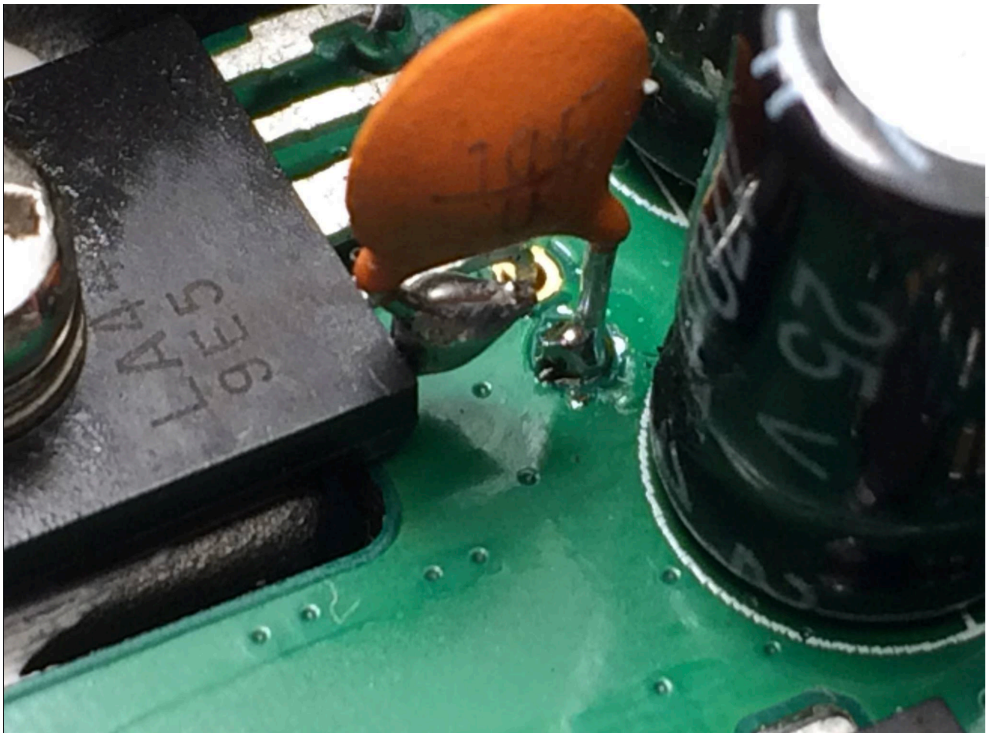
⚠️And finally, once again I remind you that this is a fiddly mod to do and needs the right tools and a reasonable skill level. If you only have a blowlamp and a hacksaw in your toolkit don't even think about it.⚠️

Colin G4EML

Colin Durbridge ▸ TYT MD-9600 Analog/DMR Radio
Nyt medlem · 8 min ·

Synes godt om Kommenter

Skriv en kommentar ...



Colin Durbridge ▸ TYT MD-9600 Analog/DMR Radio
Nyt medlem · 9 min ·

Synes godt om Kommenter

Skriv en kommentar ...

Colin Durbridge

Nyt medlem · 20 timer

I decided to have a look at the oversensitive volume control problem. The good news is that I have found what is causing it , the bad news is I do not think it can be fixed with a firmware update.

I first used a 'scope to determine if the volume control was working with audio or with a DC voltage. It has audio fed to it and is working as a conventional analogue volume control. That's the reason I do not think it can be fixed with firmware.

I then dismantled the Front panel and had a look at the pot itself. Those of you with a keen eye will see that it is a 10K B taper type, often called a linear pot. That is not correct for an audio volume control, it should be an A taper or Log pot. That's the reason the volume control at low levels is way too sensitive. (that is why the A taper was invented) . So it looks like TYT have fitted the wrong volume pot.

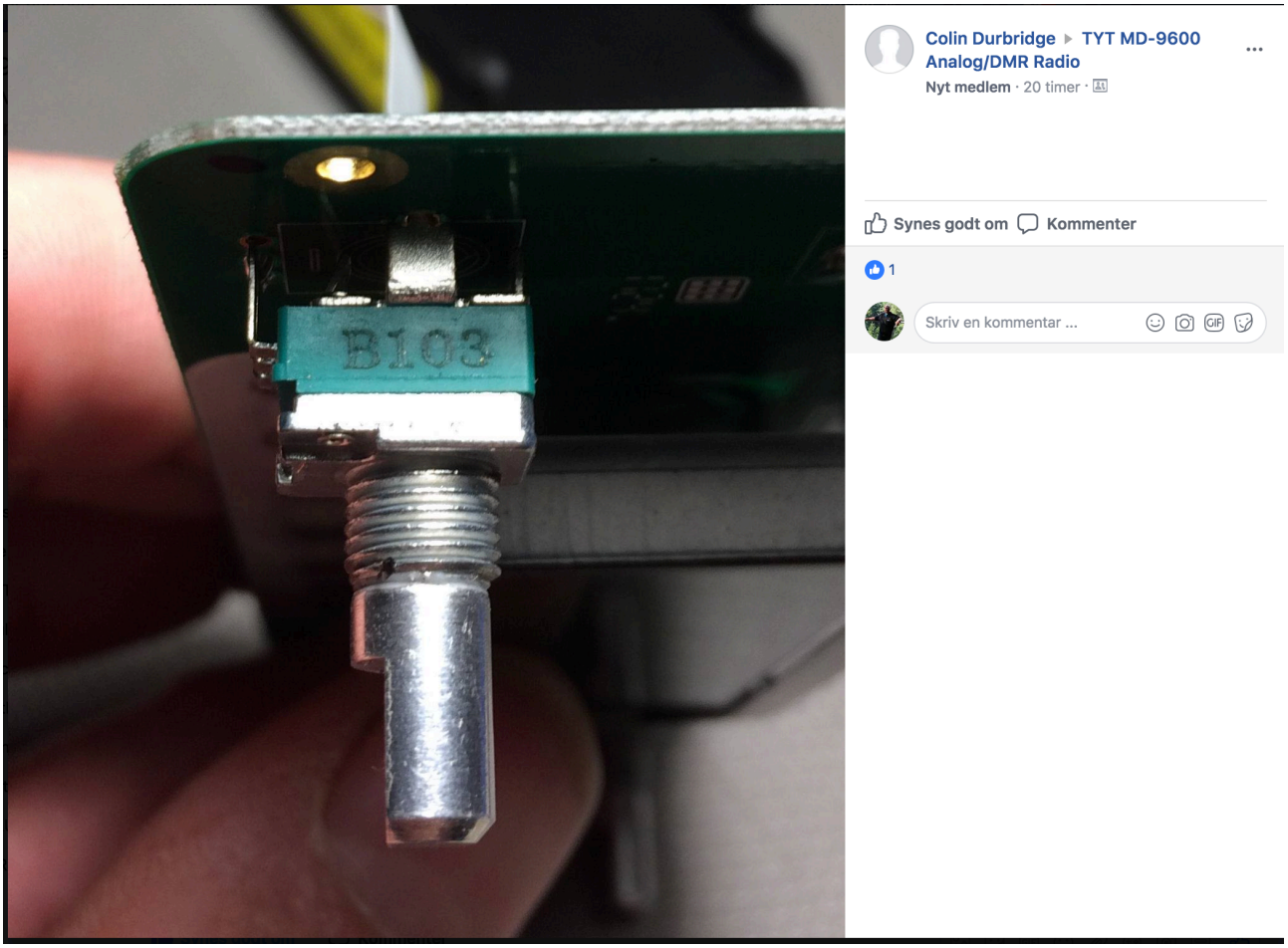
Luckily there is an old work around for using a B taper pot for audio control. That involves shunting the wiper to ground with a resistor of about 1/10th the value of the pot. When you do the maths for different pot settings this gives a fair approximation of an A taper. In the case of this radio it means adding a 1K resistor between two terminals of the pot.

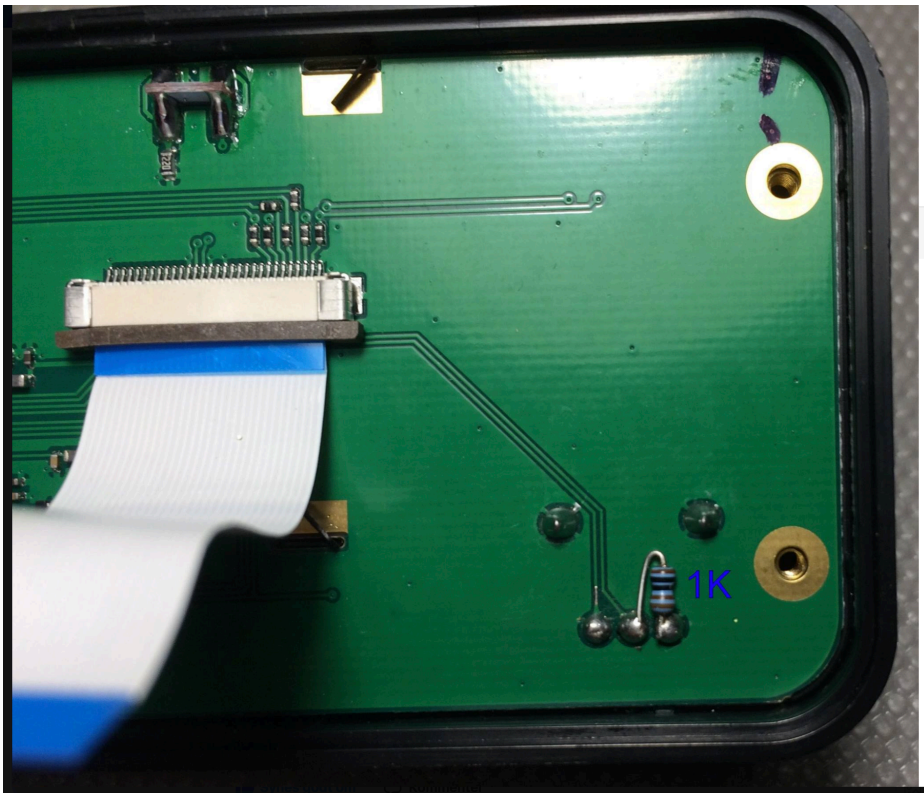
Having done this mod I can confirm that the volume adjustment is now much improved.

I am not suggesting everyone rushes to do this mod as TYT should have got it correct in the first place. (and they may come out with an alternative fix). However I am now happy with the volume control on my radio.

Colin G4EML

More..... After doing this mod the audio levels for DMR and FM remain quite a bit different with DMR being louder. This was the same before the mod. Setting a comfortable level for FM still results in loud DMR. Both are more easily adjusted but it makes it difficult to monitor both. That is something that could probably be fixed by a firmware update to reduce the DMR audio.





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Nyt medlem · 20 timer ·

Synes godt om Kommenter

Skriv en kommentar ...